Culture areas and approximate location of American Indian tribes today (originally published by the Indian Arts and Crafts Board)

Nutrition in the Indian Health Program[1]

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THE LIFE drama of the American Indian is being played on a stage remarkedly different from that of the non-Indian in the United States. Some of the reasons for this difference are obvious, while others are less apparent outside an Indian environment. The extent of application of current scientific knowledge by the Indian, as by the non-Indian, depends on the degree of interpretation and dissemination of the information, the resources available, and recognition by educators of the "acceptance rate." Indians deprived in the past of certain privileges, experiences, and resources common to non-Indians may require special educational procedures. Awareness of the differences in the "acceptance rate" will determine for the most part the effectiveness of nutrition and dietetic services among American Indians and native Alaskans.

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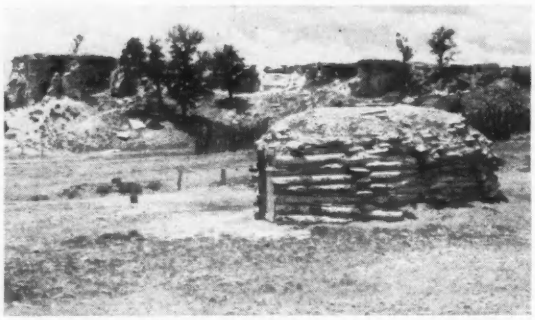

The hogan, with its door always facing the East is the typical winter reservation home of the Navajo

It would be easy to conclude from reading the professional journals and popular magazines describing advances in nutrition and its application that, in general, people in the United States recognize, accept, and use this information wisely. Furthermore, readers could assume that not only are the majority of people well informed about nutrition but that the abundance of food permits them to apply this knowledge easily. These ideas may be dispelled quickly by a careful inspection of many parts of the United States, including some of the Indian reservations. On the latter can be found people almost untouched by the present-day concepts of nutrition. In some instances food resources are meager.

Historical Backgrounds

On more than two hundred reservations and in native Alaskan villages live the descendents of the several small nations of people who once roamed at will on this continent. The population, which was estimated to have numbered approximately 1,000,000 Indians at the time of the European conquest, today numbers about 522,500. Of this number, only 347,500 live on or near reservations and 37,500 in native Alaskan villages. The remaining 147,000 Indians live throughout the United States.

Reservation areas today consist of approximately 53,000,000 areas of land in twenty-five states, or about one-third the acreage held for Indians by the federal government in 1881. For the most part, this land is arid and too poor to provide food crops or other adequate means of self-support.

Over the years, the many changes in policies and administration of Indian affairs have altered the attitudes and reactions of the Indians to non-Indians. Although Indian reservations border lands owned by non-Indians, many of the deep-seated national characteristics and philosophies of their ancestors have been retained despite the changes taking place around them. This is due partly to distrust, partly to lack of understanding, and partly to insufficient material resources. As a consequence, the practices of the past are closely interwoven with newer concepts which have been accepted by the modern Indian. Old practices are retained because there are no alternatives. Money and the means of earning money, items of necessity in our society, have not been generally available to all of the Indians; hence changes in their way of life requiring monetary exchanges could hardly be expected. Although there is a wide range in income levels, unpublished data from the United States Census of 1950 indicated that the median family income for Indians on all reservations covered by the Census was less than $1000 per year.

When the Indian tribes were assigned to reservation lands, the restrictions in freedom and economy were quickly reflected in one of the essentials for life itself, namely, food. Prior to this time tribes roamed large areas in search of food; it regulated their way of life. It is worthy of note that the several cultural groups were differentiated by descriptive titles related to sources of food. Originally there were about seven distinct cultural groups: the woodsmen of the eastern forests, the hunters of the plains, the Navajo shepherds, the pueblo farmers, the desert dwellers, the northern fishermen, and the seed gatherers. These culture areas sometimes included several tribes with different languages and patterns of living.

Some of these diverse cultural characteristics may be recognized even today. The Navajos are still shepherds; the pueblo farmers continue to live in small communities and attempt to produce a limited variety of food, principally corn, beans, and squash; and the hunters of the plains, like their ancestors, have less interest in food production than their non-Indian neighbors whose ancestors were agriculturists.

Dietary Practices

The primitive instinct to satisfy hunger, combined with the kind of foods available, originally fashioned the dietary practices of each Indian nation. Experience proved some foods poisonous; others were believed to provide strength. Certain foods were valued highly because their supply was attributed to the supernatural. For example, in the Northwest, the return of the salmon each year was associated with immortality and celebrated by a special ceremony. All bones of this fish were returned to the waters to insure a continuation of the species.

Undoubtedly, when hunting seasons were good, food supplies provided diets high in protein and animal fat. Meat was considered the most important food in the diet. Generally, all parts of the animal were consumed except the bones. In some areas, roots, such as camas root, were eaten. Young tender wild plants, wild berries, and fruits were delicacies.

The establishment of reservations and the confinement of Indians to these areas automatically restricted the sources of food. The strict regime of the

War Department, to which the Indians were first assigned, prohibited them from leaving the reservation without permission. Thus they could not seek food for their families over a broad territory. The supply of game and wild foods soon became exhausted. As a substitute, the Army periodically issued rations of meat, flour, coffee, and sugar. This dietary pattern remains much in evidence today.

Nutrition Services for Reservation Indians

In 1955 Congress transferred the responsibility for providing health services to the 347,500 Indians and 37,500 native Alaskans from the Bureau of Indian Affairs of the Department of the Interior to the United States Public Health Service in the Department of Health, Education, and Welfare. It directed the Public Health Service to raise the level of Indian health to that of the rest of the nation. At that time, there was no organized nutrition and dietetic service. There were dietitians in eleven of the fifty-six reservation hospitals and one nutritionist in a small demonstration health unit on one reservation. In the remaining forty-five hospitals, each food service department functioned independently and without benefit of professional consultation or guidance from a qualified dietitian or nutritionist. The dietitians in the eleven hospitals worked diligently to carry on a satisfactory service, often despite the apparent lack of concern of the hospital administration toward nutrition.

In 1955, most of the hospital kitchens were staffed with Indian cooks and workers who had little or no formal education, no training in food production, food service, or dietary planning for hospital patients. This situation still prevails. There were no diet manuals from which doctors could order diets or which the cooks could use as a guide in filling the orders. No particular emphasis was given to providing nutritionally adequate diets. Little conscious effort was made to serve the patient food that was acceptable to him, that took into consideration his cultural food preferences and his special nutritional needs, or that would demonstrate to him how he might adapt his home diet to make it more adequate nutritionally. There was little or no information about the foods patients ate at home or had available. On discharge, patients who needed to continue modified diets were either given "textbook" diets without reference to food habits or available food supplies or sent home without dietary instruction because, "They won't follow the diet anyway."

This situation should not be attributed entirely to what might appear to be the hospital staffs' indifference. The small number of professional personnel in each hospital was too busy caring for critically ill patients to visit Indian homes to learn about living conditions, where food was obtained, or what

An Indian woman with cradle board on her back and her young son travel on foot to visit the Outpatient Clinic of a Public Health Service Indian hospital

was eaten. They knew only that poorly nourished patients were routinely admitted to the hospital, that they improved when more and better food was available, but that readmissions in the same poorly nourished state were frequent. There were no professional nutrition resources or appropriate nutrition materials available to help the medical staff with these problems. There was a reason for this lack of professional consultation and materials.

Strangely enough, there have been few well planned nutrition or dietary studies among American Indians, as compared with the number of such studies made in many other parts of the world in the past few years. Nutritional improvements should be possible here that cannot be initiated elsewhere in the world. Where else can one find such a large number of different tribes living side by side with people who possess all the known scientific knowledge of the advances in nutrition, a surplus of foods, unparalleled medical skills, and facilities? It is strange that more attention has not been directed toward determining the nutritional status of these people and learning something of the possible physiologic adaptations resulting from years of diets limited in calories and other nutrients considered essential for the maintenance of health.

Nutritionists as well as other members of the health profession should be concerned about a death rate among Indian infants approximately three times that of the infants of the rest of the United States, and the fact that the life expectancy for Indians is approximately ten years less than for non-Indians. (Half of the Indian population is under twenty years of age.)

One cannot but question the possibility that nutrition is one factor involved in the numerous health problems which prevent the Indians from attaining the same health standards enjoyed by non-Indians.

Could nutritional practices over the years have resulted in altered physiology which is partially

responsible for the high incidence of diabetes and cholecystitis? No answers are available at present, but such questions need answers.

It was due to the keen perception and insight of the Chief and the Assistant Chief of the newly created Division of Indian Health in the United States Public Health Service, Dr. James R. Shaw and Dr. J. O. Dean, respectively, that Nutrition and Dietetic Services were included among the services to be provided in the new health program (combined medical and preventive program). These men and members of their staff who had been assigned by the Public Health Service to the Branch of Health of the Bureau of Indian Affairs, prior to the transfer frequently observed that patients in Indian hospitals suffered not only from diseases which are practically non-existent in the rest of the population, but also from malnutrition, particularly infants and young children. They realized that without the knowledge of the relationship of food to health, the Indians neither could nor would endeavor to obtain the kind and the amount of food essential to good growth and development, the maintenance of health, and resistance to infection. They recognized, too, that emphasis on nutrition was essential in the preventive health aspects of the program, as well as in medical care, to achieve the necessary health improvements they considered possible.

Plans for Nutrition Services

The Nutrition and Dietetics Branch, created two and a half years ago, has the unique advantage of developing within a framework of a total health service supported by multi-disciplinary professional and lay health workers. In contrast to other health services of the Public Health Service or to health services of other official and voluntary agencies and/or institutions in the United States, the Division of Indian Health is directed by Congress to provide both medical care and preventive health services. Obviously, medical treatment alone can never solve the existing health problems. One of the basic difficulties in the improvement of Indian health is the lack of understanding by many of the Indians of the elementary principles of good health and how these may be applied to everyday living. Helping them understand and assume responsibility for their own health is a major objective. This applies equally to the nutritional component of the health program.

Therefore, the therapeutic and preventive aspects of nutrition are being planned to permit complete nutrition services to families. The objective is to help provide an understanding of the importance of the establishment of sound dietary practices as one means of attaining better health. The hospital patient receiving nutritionally adequate meals will be given dietary instruction compatible with that which has been provided through the preventive services carried on in the field. This guidance will be continued by public health personnel after the patient's discharge. The nutrition information will be consistent in content and adapted to the cultural practices (insofar as they are known) and to the available food resources.

To bring about this concerted effort with respect to nutrition and dietetics, assistance must be given to the other professional disciplines. They need to know that a nutritionally adequate diet can be provided within the framework of the Indians' cultural beliefs and practices and the sources of food available to him; that the dietary instruction, based on today's scientific nutrition knowledge, must be adapted to what is practical for and acceptable to the individual or family.

This entails a change in attitude as well as practices of many of the professional staff in hospitals, and in the preventive health services. Helping them to appreciate that dietetics and nutrition involve more than the transfer of menu patterns and food guides used in other parts of the United States is the responsibility of the public health nutritionist and dietitian. They need to help professional health personnel to recognize that food practices differ throughout the nation and the world. Foods acceptable to the Indian and native Alaskan frequently are not acceptable to non-Indians, but difference in acceptability should not, by itself, condemn such foods. Knowledge of the nutritive value of the established dietary pattern is essential before attempting to suggest practical ways of improving it. There are still evidences of a number of foods used by Indians which have never been adopted by non-Indians.

The "bannock" of the Arapahoes, the "bean bread" of the Cherokees, the hard-crusted bread baked in the outdoor ovens of the Zuni and Taos Indians, or the parchment-thin blue bread of the Hopis may not be acceptable to non-Indians; but one can imagine how tasteless must be the soft, spongy bakery breads to Indians accustomed to these breads. The Navajo stew, made of backbone of mutton and corn, simmered slowly all night in an open kettle; the pemmican of some of the northern tribes; or the whitefish liver cream of the Eskimo, which is made with cooked and mashed whitefish livers, blackberries, sugar, and whitefish oil may not be a delicacy to persons tasting it for the first time. Nevertheless, those who have had these foods as a part of their diet since childhood find them delicious. What are the nutritive values of some of these foods? What nutritional contribution do they make to the diet?

Each tribe appears to have its own modification of a meat-and-cereal diet, depending on location, the income of the people, the foods available. Many wild foods once widely used are no longer available. Any real knowledge about the importance of food to

health, good growth, and development, however, seems definitely limited. Thus, provision of an understanding of the relationship of food to health is an important part of the Division of Indian Health program. A practical nutrition education program, however, must be based on facts.

Facts on Diet and Nutritional Status Needed

A great deal of information is needed to know how to modify the Indians' diets and adapt their existing food practices to acceptable patterns which will provide the nutrients considered essential for good health.

At present, in only one area is there any nutrition research being carried on in a fairly complete manner. The Public Health Service in its Arctic Health Research Center at Anchorage has for the past two years been conducting studies of dietary practices of Indians and Eskimos in selected villages. One of the members of this Assocation, Dr. Christine Heller, has been involved in gathering information about the dietary practices, has obtained samples of food for analyses, and has also collected samples of blood and urine for selected biochemical determinations, including hemoglobin levels. During March 1958, the Interdepartmental Committee on Nutrition in National Defense sent a team to Alaska to study the nutritional status of men who were reporting for National Guard duty. This team also visited the villages where Dr. Heller is doing her studies to make nutritional surveys of the people living there. The report of the study has not been completed; but when it is, it will provide information needed for developing dietary planning for hospital patients and for nutrition education among Indian and Eskimo families throughout Alaska. Investigations of a similar nature should be carried on among other tribes, for baseline data are essential to planning a practical and acceptable program.

Some of the questions which require answers with respect to nutrition of the Indians are:

(a) What are the present dietary practices of the Indians on the reservations and in villages?

(b) What is the nutritional status of Indians living on the reservations and in the villages? What effect will a change in diet have on an organism nutritionally adapted over several generations to a level lower than considered desirable? Will the balance be altered adversely?

(c) Is the incidence of diabetes really higher among Indians than non-Indians, and if so, why?

(d) Why does the evidence of cholecystitis and cholelithiasis among Indians appear high?

(e) What accounts for the apparent low blood cholesterol levels of the Indian groups, despite indications of diets high in animal fat?

(f) Is there a relationship between the extreme diarrhea of infancy and nutrition or the severe upper respiratory infections and nutrition?

(g) Will a change in the Indian's customary diet to one more nearly resembling the diet of the non-Indian create in the Indian some of the chronic types of diseases prevalent among non-Indians?

(h) What means of education should be used to teach Indians that nutrition is important in growth and development of children and maintenance of health in people of all ages; that some of their dietary practices handed down from generation to generation (which in the past have been disapproved because they do not duplicate the non-Indian pattern) are good and should not be replaced with some of the poor non-Indian practices? What is the best way to convey this information and demonstrate its importance to some of the non-English-speaking people, remembering that in the Indian culture important decisions are made by the older people?

The answers to some of these questions are important in establishing a sound program in nutrition and dietetics which can contribute to health improvement. A delay in obtaining such information and initiating the education program could create new health problems. Undoubtedly the Indian culture can and will change more quickly in the future than it has in the past. The opportunities to prevent some of the foreseeable health problems which might be attributed to the adoption of certain non-Indian dietary practices should not be overlooked.

The vast resources of scientific knowledge about nutrition, coupled with the many educational techniques for effective application of the knowledge should be used to help the Indians share in better health. Well established and often well founded cultural food practices, available food supplies, lack of knowledge about food and its relation to health, and language differences are important factors in the efforts to improve nutritional status.

Attainment of lasting nutritional improvements appears more likely in a program designed for the continuity of service in nutrition and dietetics.

The dietitian in the hospital and the nutritionist in preventive service will have the unique opportunity of working together toward the same goals, namely, to develop and establish appropriate means of bringing about a better understanding and use of science of nutrition.

Conclusions

There is no precedent for these combined nutrition and dietetic services in the Indian health program. In a country geared to prosperity, to food surpluses, to professionally trained health personnel, and accustomed to rapid changes in thought and action, there are no guides to follow. Despite our well developed nutrition standards, measures, and procedures, new ones are needed for Indians which take into consideration the culture, the "acceptance rate," and the many social, economic, and technologic resources available in the United States.

Real frontiers, truly unexplored areas for nutrition and dietetics, may still be found in the United States.

A Dietary Study Among a Group of Southern Negroes[1]

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THE POPULATIONS of nations having widely different types of civilizations afford a great natural laboratory for the investigation of diet and its possible role in various diseases. For almost fifty years one disease of particular interest in relation to diet has been atherosclerosis.

As a part of a comparative study of atherosclerosis in Negroes of Haiti and the United States, dietary surveys were carried out in these two population groups during the summer of 1956 in order to obtain quantitative information on eating habits and general living conditions. The Haitian dietary survey (1), as well as a report of the pathologic findings in a series of 267 routine autopsies in the two countries (2), have been published. This paper is concerned with the diet of representative Negro families residing in the Charleston area of South Carolina. The findings are compared with those obtained among the racially similar (3) Negroes of Haiti.

Undoubtedly there are appreciable sectional differences in the eating habits of the Negroes of the southern United States. Characteristically, however, their diet is known to rely heavily on cereal grains and their products, such as rice, corn grits and meal, and wheat flour, with more or less regular use of legumes, sweet potatoes, greens, watermelon, fat meat, fish, and chicken. Rice and black-eyed peas cooked together (as "Hopping John") is traditional, as are many soups and stews in which "pot licker" is included. Amounts of commercially prepared foods, such as bread, cold cuts, and soft drinks, quite likely differ in isolated rural areas and in urban centers, as well as the amount of fish and fresh meats consumed and perhaps the kind of fat. However, generous use of fat meat, of starchy foods, chicken, and various greens is perhaps a relatively constant feature of the Negro diet throughout the South. The quantitative information obtained in this study of people of the Charleston area may be reasonably representative of a large segment of the Negro population of the United States.

The Area

Charleston is a sea coast city, having a mild climate and relatively short winters without snow. Its average growing season of about 273 days a year is conducive to an abundant supply of locally produced foods, and fish and other sea foods are readily available.

In the summer and autumn of 1956, the more economical kinds of fish sold in the markets for 20 to 25 cents per pound, eviscerated and fresh. Large markets, well stocked in terms of the demands of these people, offered economical purchases of cereal grains in 10- and 25-lb. bags (and larger on request) with short and broken grains available for greater economy. A few families, notably those living in outlying areas of the city, raised some vegetables.

During this study, there was relatively little unemployment. Despite this, and the addition of new housing projects, many of the Negro families residing in Charleston proper were poorly housed. More adequate housing was available in the suburbs for those who could commute to work. Rural houses usually included sufficient ground for small gardens.

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Scope and Methods of the Study

Detailed dietary information was obtained from fifty-nine families, nearly all of whom were interviewed in their homes. Each homemaker was visited from one to four times over a period of several weeks. Information obtained during these visits was often supplemented by interviews with other members of the families. Typically, the visits lasted from 1 to 2 hr., with many scheduled on Saturdays or other days of major purchasing so that foods might be observed and weighed. All data were collected by the same interviewer (Grant).

The families were selected from urban, suburban, and rural health districts by public health nurses. Criteria for selection were: relative freedom from known disease of serious nature, previous rapport, location of the homes, and economic status. Less than one-fourth of the families lived in rural sections, and, aside from two families of farm hands, only one depended on farming as the sole source of income.

Initially, anything suggestive of a formal interview was avoided. Insofar as possible, each call was a visit where the main subject of conversation was the woman and her family. Food purchases and preparation were discussed in detail, so that at the end of the interview, information had been obtained concerning the kind and amount of food prepared during a 24-hr. period, as well as the number of persons for whom the food was prepared. Data were obtained concerning lunches eaten by the men at work and by the children at school. These were considered to be fairly reliable, since the lunches of the men were usually packed at home and there was little variation in the kind and amount of food available at school. Forms for recording information were used during the last part of the visits, but not until their purpose had been explained.

Families receiving more or less regular incomes generally purchased their food in fairly large quantities on the days wages were received. Details of these purchases were determined by weight or measure on the days of purchase or, when this was not possible, estimates were made on the basis of information obtained during the interview. Scales were carried on each visit and were used to weigh portions of dry rice or grits which the women specified in cupfuls as the usual quantities cooked. Where cooked portions were available, individual servings typical of those reported for various members of the families were weighed. Later, such data provided useful checks against the total purchases reported, especially in cases where weights or measures of the large food purchases had not been obtained. A few women saved bones from meat and fish as an aid in estimating the refuse from the "as purchased" portions.

Heights and weights of approximately one-third of the adults and nearly all of the children were recorded (although those of the latter are not reported here).

Class I family of squatters near Charleston

The families were divided into groups or classes on the basis of economic status, the amount of money spent per day for food, the general dietary pattern, and other factors, such as the standard of living, age of the head of the family, and amount of food raised. For example, one family whose income was among the highest was placed in the middle class as far as dietary pattern was concerned, since cooking facilities were not available for meals comparable with those of others of similar earnings.

Nearly all of the families could be classified into one of three categories: Class I, the lowest economic level or those with lowest standards of living; Class II, those of average means (as judged by standards of the over-all Negro population), largely young married people with several children; and Class III, those with highest earnings and standards of living, many of whom were older persons with perhaps grandchildren or older children living in their homes.

Additionally, there were: five families referred to as "semi-rural," who lived either in the country or suburbs and who supplemented a cash income by raising some vegetables and chickens; one "rural" family, whose head was a subsistence farmer; and three "rural women," each older and living principally on public funds. Differences in location of residence were not considered in separating the three major classes, since several families lived in rural areas but did not raise a significant amount of food.

As in the survey in Haiti (1), children over six years old were included as adults in distribution of

Class II family—the grandmother, shown here, was 40 per cent overweight by the standards employed

food and in the calculations of costs per person per day. Corrections were made for food eaten by children under six years of age as described previously (1).

Apparently visitors in these families were less common than among the Haitian families, as corrections for food consumed by visitors was necessary for only one family at one meal. In cases where men purchased food at noon, the amount was estimated by the women and in some cases verified by later conversations with the men or altered as required.

The steps in considering the data included: (a) calculation of the food costs reported in terms of prevailing price in the area (or market where purchased); (b) comparison of this cost with that obtained from totals reported by the women for the period; (c) checking costs obtained in the step (a) with costs of daily servings of staples as determined by weighing; (d) classification of families; (e) conversion of "as purchased" weights to "edible portions" where refuse was involved; and (f) calculation of energy values, protein, fat, carbohydrate, and some of the fatty components of the food.

Food values were obtained as indicated for calculation of the Haitian diets (1), except for the corn meal and cured and fresh pig jowls ("butts" meat). The values for corn meal were obtained from Agriculture Handbook No. 8 (4), while those for the jowls were derived from analysis of local samples by courtesy of Rice (5).

The Families

In the 59 families, the diets of 235 "adults" were considered. This breaks down as follows: Class I, 13 families with 57 "adults"; Class II, 28 families with 101 "adults"; Class III, 9 families with 27 "adults"; semi-rural, 5 families with 32 "adults"; rural, 1 family with 11 "adults"; and sedentary women, 3 families with 7 "adults." In addition, there were 109 children ranging from early infancy to and including six years of age, as well as five adults in these families whose meals were taken elsewhere.

Supplementary information is given in Table 1, where the groupings of the families are largely in terms of work or source of income. The average cash income of the heads of thirty-two of the fifty-nine households was reported to range from about \$9.50 to \$53 a week[4]. This did not in all cases represent the total money available to the family as a whole. Seven families in Class III had extra earnings from wives working part time, or from older children at home or elsewhere. Five of the middle group (Class II) also had extra income; eight of the poorest families in Class I had some extra earnings now and then from other members of the family, while one of the semi-rural families had adult sons who worked and contributed to the household expenses. Younger children apparently earned small sums now and then from odd jobs, although the extent of this was not determined.

Twenty-one families (approximately 36 per cent) owned their homes, and, in contrast to those who "owned" in Haiti, the land on which the houses were built was also owned. Those on the edge of the metropolitan area of Charleston owned from ½ to 16 acres of land. However, the one true farmer owned only 2 acres. Many of the true urban families by contrast lived in exceedingly crowded districts, some having no land surrounding their houses and only two rooms. Rent was reported to range from \$4 per month for one room in a rural settlement to \$37 for a pleasant, two-story house of six rooms in Charleston proper.

Most of the families were large, ranging from 2 to 18 persons. There were 13 children in the farmer's family, and 16 families consisted of 8 or more persons. Size of the families, of course, reflects the

[4]Several incomes were higher. One garage mechanic was reported to earn \$55 a week, while others were near this figure.

TABLE 1 **Information on families studied in Charleston area (given as means)**

STATUS OF FAMILY	NUMBER OF FAMILIES	WEEKLY EARNINGS OF HEAD OF FAMILY*	NUMBER RENTING	MONTHLY RENT	NUMBER OWNING HOME	ROOMS IN HOME	SIZE OF FAMILY		CHILDREN BELONGING TO HEAD OF FAMILY†	NUMBER OF WOMEN PREGNANT	NUMBER OF WOMEN WITH CHILDREN UNDER 18 MONTHS
							Mean	Range			
Odd jobs	4	$12.50	4	$11.00	0	2.2	6.2	3–9	4.2	0	4
Laboring to semi-skilled work	7	32.00	7	19.00	0	3.1	8.4	5–14	5.4	3	4
Semi-skilled to skilled work	30	48.00	14	25.00	16	4.3	6.1	3–11	3.8	8	9
Farm hands	2	—	2	—	0	3.5	8.0	7–9	5	0	0
Farmers only	1	—	0	—	1	5.0	15.0	—	13	0	0
Younger women alone‡	4	15.50	4	12.75	0	2.5	6.2	4–10	4.8	0	2
Older women with stipends	4	9.50	3	12.00	1	2.5	2.5	2–3	0	0	0
Men with stipends	4	20.50	1	10.00	3	5.5	9.0	3–18	3.5	0	0
Men with G.I. income	3	45.00	3	23.00	0	3.0	3.7	3–4	1.3	2	1

*Approximately half provided information on income, so that the means do not represent the entire sample in each category. In all groups, there were some families whose incomes were increased by earnings of other members of the family.

†Households often included other children, such as grandchildren or nieces or nephews.

‡Refers to women whose husbands were not at home. Three of these worked as laundresses or cleaning women, while the fourth received aid from her estranged husband.

birth rate and the infant mortality rate, the former being high and the latter having markedly decreased during recent years. In the 59 families, 41 women had children from ages of early infancy to six years. Fifteen women had delivered within the past six months, while 13 acknowledged current pregnancies. The remainder probably were beyond child-bearing age.

Meal Patterns, Food Preparation, and Prices

Three meals each day were customary among families with regular income, as well as among those with young children. Five women reported that they ate only when hungry, which most often seemed to be twice each day. Five men with regular employment took no breakfast, despite an earlier meal by other members of the family. At times, these men were said to take coffee or juice. Most of those in the metropolitan area of Charleston, as well as those in rural households with men employed elsewhere, ate the largest meal in the evening. This, of course, is contrary to the traditional, southern custom of taking the largest meal in the early afternoon.

Corn grits was almost always included at breakfast, usually with a meat dish and "drippings" or margarine, or with eggs. In some of the better-off homes, both eggs and meat were reported for the first meal. Fried bacon or pork side meat, and fresh or smoked sausage were the meat dishes served most frequently with grits, though bologna browned in fat was also popular. Occasionally fried fish was served at the first meal, or meat soups might be served with the grits, if left over from the previous evening. Surprisingly, tea was used about three times as commonly as coffee for the morning beverage. Fruit juices, when reported, were usually taken between meals.

Lunches for men at work commonly consisted of such left-over foods as rice and thick soup (carried in a thermos or glass jar) or several sandwiches with a lunch meat. Some carried beverages prepared from commercial powders, while a few took fruit juice or lemonade. At home, the young women and their children most often ate sandwiches of peanut butter or jelly, or even mayonnaise (although apparently these spreads were seldom combined). At home, also, a beverage prepared from a drink powder was popular at noon. Those who could afford it often enjoyed a cola-type drink, either at noon or between meals. Except for the poorest families and a few of average means, some milk was used daily. All children under six received at least a small glass of milk daily.

Rice was a staple served at the main meal of each family. In the poorest and middle groups (Classes I and II), rice was most often accompanied by a soup of okra or legumes which had been seasoned with fat meat and, with the okra, some tomatoes as well. Pork jowl ("butts" meat), either fresh or salted, was used in each class more often as the seasoning of choice than was any other fat cut of pork. Chicken at least once each week was the rule for most families, and almost all served fresh fish at least weekly. Popular cuts of meat among the poorer and middle classes were pork neck bones, tail bones, and spare ribs, while considerable beef (largely "budget" grade) was used at each level, as were ham hocks and miscellaneous pork cuts.

Regardless of the meat dish, macaroni baked with

TABLE 2 **Mean weight of edible food per "adult" per day in each group studied*†**

FOOD	CLASS I		CLASS II		CLASS III		SEMI-RURAL FAMILIES		RURAL FAMILIES		RURAL, SEDENTARY WOMEN	
	Number	Weight of food	Number	Weight of food	Number	Weight of food	Number	Weight of food	Number	Weight of food	Number	Weight of food
		gm.		*gm.*		*gm.*		*gm.*		*gm.*		*gm.*
Potatoes, edible wt.	–	–	21	36	9	10	4	46	–	–	3	25
Rice, dry grain	13	122	28	90	9	93	5	90	1	125	3	73
Corn grits, enriched meal	13	69	27	58	9	65	5	76	1	152	3	60
Flour, wheat, enriched white	13	52	28	26	9	23	5	38	1	43	2	28
Bread, enriched white	9	89	28	77	9	98	5	90	1	60	1	60
Macaroni	1	8	10	10	9	11	–	–	–	–	–	–
Crackers	2	20	17	16	9	18	–	–	–	–	–	–
Legumes, dry seeds	13	38	23	21	9	30	4	25	1	30	3	27
Peanut butter	5	15	17	11	–	–	4	13	–	–	–	–
Sugar, white	13	34	28	33	9	28	5	25	1	10	3	48
Soft drinks, cola type	–	–	17	79	9	180	–	–	1	26	2	38
Jelly	–	–	19	8	–	–	5	20	1	15	–	–
Margarine and hydrogenated fat	5	3	26	13	9	12	4	4	–	–	1	7
Butter	–	–	1	6	2	10	–	–	–	–	–	–
Mayonnaise, commercial	4	10	21	7	9	8	3	8	–	–	–	–
"Butts" meat (pig jowl)	13	20	22	17	9	17	5	23	1	25	3	30
Bacon, slab and sliced	–	–	21	18	9	19	–	–	–	–	–	–
Lard	13	13	17	7	5	15	5	17	1	13	3	13
Pork, miscellaneous cuts	13	25	28	35	5	15	4	40	–	–	2	10
Cold cuts, frankfurters	–	–	24	17	9	45	3	10	1	8	1	7
Beef, budget grade	4	22	19	26	9	46	2	8	1	13	2	16
Fish, fresh	11	18	28	28	9	49	5	23	–	–	–	–
Salmon, canned	1	6	5	10	2	6	–	–	–	–	–	–
Chicken, fresh	11	14	24	20	9	40	5	28	–	–	–	–
Eggs	13	17	24	25	9	54	5	18	1	30	3	18
Cheese	1	4	11	8	9	5	1	3	–	–	–	–
Milk	4	120	22	158	9	160	5	180	1	52	1	78
Greens, okra	13	33	28	40	9	43	5	87	1	45	3	25
Carrots, parsnips, and turnips	–	–	13	12	9	15	–	–	–	–	–	–
Tomato	13	36	21	24	9	21	5	15	–	–	3	25
Onion	5	10	16	11	4	5	5	9	–	–	–	–
Citrus fruits and juice	5	12	20	48	9	141	3	30	–	–	–	–
Banana	5	12	12	13	9	20	1	10	–	–	–	–
Watermelon‡	5	–	20	–	9	–	–	–	–	–	–	–
Other fruits, fresh and canned	–	–	12	20	9	65	2	10	–	–	1	15
Gelatin	–	–	8	16	5	25	–	–	–	–	–	–
Ice cream	–	–	–	–	2	100	–	–	–	–	–	–
Cocoa, dry	–	–	–	–	2	7	2	3	–	–	–	–
Tea	2	1	22	1	5	2	3	1	1	2	3	3
Coffee	–	–	3	5	3	10	3	8	1	7	2	3
Kool-Aid	5	–	23	–	4	–	1	–	–	–	–	–
Salt	13	5	28	4	9	5	5	3	1	5	3	4

*Children over six years and older included in means for families.
†All weights are raw except bread, cold cuts, and other items generally sold after preserving or processing.
‡Weights not determined, but used often during the study.

milk, cheese, and eggs is a traditional dish of the area for Sunday dinners, and it was served in most of the older families of average or better means. There were fewer hot breads reported than expected (though the majority stated that these were prepared frequently during cooler weather). It was interesting that pastry desserts were almost never reported. Only two women reported that they baked pies now and then for Sunday dinners. Observations in rural stores suggested that commercial pies, doughnuts, and sweet rolls may be popular as snacks for men at work. In any case, the women seldom prepared desserts during the week. When these were served, canned or fresh fruits were most popular. A few women reported use of gelatin, and some of the better-off served ice cream now and then.

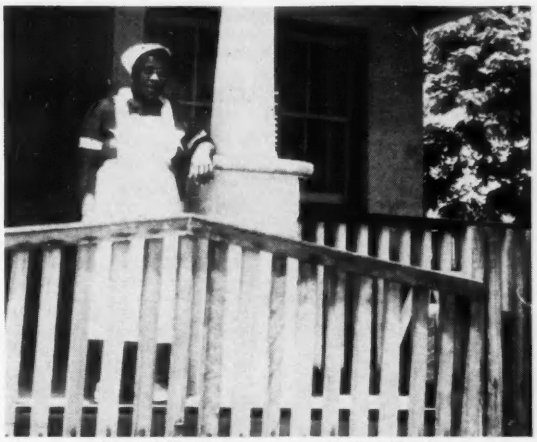
Many families appeared cognizant of the principles of good buying. Staples were purchased in large quantities, either weekly, fortnightly, or even monthly, and usually in large super-markets or cut-rate stores. Nearly all foods were bought for several days in advance (except where funds were low until work was found). Large pieces of bacon, shoulder, and "butts" meat were purchased and suitable quantities cut off as needed. For the few who shopped in rural or small independent stores, prices seemed high, whether the shop was operated by one of their own race or otherwise.

The cost of rice for the majority ranged from $2.49 to $2.60 for 25-lb. sacks, depending on the characteristics of the grain. When this staple was purchased in smaller quantities, the price varied from 12 to 13.5 cents per pound, or about 20 per cent more than in large quantities. Grits, too, were cheap, selling from between 4 and 10 cents a pound, depending on the quality and quantity purchased.

Fresh, degutted fish, as noted earlier, sold from 20 to 25 cents per pound. This range did not include flounder. The fish most commonly used by this segment of the population was porgy (scup in New England) at 20 cents per pound, although mullet at 22 cents and croaker and whiting selling at about 25 cents per pound were also popular.

Dietary Intakes of Specific Groups

The average amounts of edible food per "adult" per day for families studied are given in Table 2. In Class I, the average cost or cash value of the food was calculated to be 27 cents; in Class II, this was 41 cents; in Class III, 52 cents; in the semi-rural group, 31 cents; in the one rural family, 21 cents; while in the families of sedentary women, the average cost per adult was only 18 cents. Differences were due partly to variation in prices among communities, despite similar caloric values in some instances. The grades of rice used, the amount of soft drink consumed, and the kind and amount of flesh food also influenced cost.



Class III woman—a trained midwife

About 90 per cent of the families used margarine rather than butter. Lard was the most extensively used fat for frying or shortening, although hydrogenated fat was used almost as much. However, as suggested earlier, pork cuts contributed the largest proportion of total fat for most of the families.

The average amount of salt provided per person per day was calculated to be about 5 gm. Considerable additional salt would be obtained, however, from the use of cured pork, especially from the "butts" meat and other similar cuts.

The caloric values of the diets are shown in Table 3, in comparison with those calculated for families in Haiti. The other nutrients also are given in this table. For Class I, the food for Charleston families provided 1778 calories per "adult" a day; for Class II, 2075 calories; for Class III, 2500 calories; for the semi-rural families, 2063 calories; for the one rural family, 1900 calories; and for the rural sedentary women, 1517 calories.

Using the traditional figures of 4, 4, and 9 as caloric values for protein, carbohydrate, and fat, respectively, the following distribution is found for the three main classes: Class I, 9.5 per cent of the total from protein and 22.5 per cent from fat; Class II, 13.7 per cent of the total from protein, 34.8 per cent from fat; and in Class III, 14.2 per cent from protein and 35.5 per cent from fat. Average distribution of the calories in the Haitian and the South Carolina diets are compared in Table 4.

In the poorest families of South Carolina Negroes, only about one-fourth the protein was of animal origin, which is much lower than the average. The principal sources of protein for the lower class in South Carolina were cereal grains and legumes.

Amounts of fat obtained from animal sources ranged from 75 to 88 per cent of the total intakes for the three main groups. This distribution was similar in the miscellaneous groups in Charleston. With so large a proportion of fat from non-vegetable

TABLE 3 Comparison of certain dietary constituents supplied for specific groups of families in Haiti and in Charleston (expressed as averages for adults)

GROUP	CALORIES	PROTEIN		FAT		FATTY ACIDS		CHOLESTEROL
		Animal	Vegetable	Animal	Vegetable	Unsaturated	Linoleic	
				Haiti				
		gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*mg.*
Class I	908	2	23	3	24	17	6	10
Class II	1428	11	31	8	42	34	15	53
Class III	2307	25	43	20	74	59	26	116
				Charleston				
Class I	1778	12	38	37	5	25	3	224
Class II	2075	33	35	58	19	45	7	349
Class III	2500	53	37	84	16	56	10	609
Semi-rural families	2063	27	34	59	14	44	11	306
Rural family	1900	11	41	41	5	31	5	262
Sedentary women	1517	12	30	45	3	29	4	204

TABLE 4 Total calories in average diets of adults in Haiti and in South Carolina and proportion of fat calculated as linoleic acid*

GROUP	TOTAL CALORIES FROM EACH NUTRIENT			FAT AS LINOLEIC ACID
	Protein	Fat	Carbohydrate	
	%	%	%	%
Haiti	10.9	31.1	58.0	26.7
Charleston	13.3	31.1	55.6	8.7

*When traditional figures of 4, 9, and 4 are used for protein, fat, and carbohydrate, respectively, the average caloric values of the diets are 1649 and 2081. These values were used as the basis for the calculations in this table.

sources, the proportion of linoleic acid was low relative to that found in Haiti. Lard and other fat from pork contributed most of this essential fatty acid in the diets of these American Negroes. The dietary cholesterol was much higher than that in the Haitian diets, ranging from 224 to 609 mg. per person per day. The difference in this component came from the more or less regular use of eggs by the South Carolina families.

Discussion

Few adults in the South Carolina families were undernourished in terms of calories, judging from their weights as shown in Table 5. In Table 6 it may be seen that only 13.6 per cent of the men and 25 per cent of the women were below standard weights as contrasted with about half of the Haitian men and women, who were 20 per cent or more underweight. Conversely, none of the Haitian men and less than 1 per cent of the Haitian women were above standard weights for their sizes, as against the imposing figures shown for the American members of their race. Indeed, in the latter group there were those as much as three-fourths above the accepted standards for weight.

In addition to the more favorable caloric balance, certain nutrients may have been more generously supplied in the American diets. The use of enriched flour, corn meal, grits, and bread supplied important amounts of niacin, iron, riboflavin, and thiamine. With the exception of families in the lowest class, the essential amino acids would have been generously supplied. And even at the lowest level, with 50 gm. protein, one-fourth of which was from animal sources, one would not expect a significant lack of any amino acid. However, considerable variation in the diets must inevitably occur among many of these people, especially the more impoverished, as a result of variation in employment and the like. Women, who between child-bearing, worked as cooks or maids stated that they ate more during periods of employment, and some of the poorer men received a larger or more steady income at certain times, so that money available for food would have been greater at these times.

In any case, the positive energy balance for many is not surprising. With few exceptions, the women at home were not actively engaged for most of the day. Then, individual reports suggested that the men received a greater share of the food in relation to younger members of the families, those included as "adults" here.

Using the figures from the Department of Agriculture's surveys of household consumption as made and discussed by Stiebeling (8), several differences are found between these diets in South Carolina and those for the country as a whole. According to quantities of food brought into a large number of kitchens in the United States, about three or four vegetables and fruits were eaten per person a day. In the present study, only those in the third class had this many servings.

None in this study had the two or three cups of milk each day, as reported for the samples through-

TABLE 5 Comparison of weights of adults in Haiti with those in Charleston

SUBJECTS	NUMBER OF SUBJECTS	WEIGHT		HEIGHT	
		Average	Range	Average	Range
		Haiti			
		lb.	*lb.*	*lb.*	*lb.*
Class I					
Men	25	111	92–146	63.5	60–69
Women	34	103	66–120	60	58–67
Class II					
Men	19	124	98–143	65.2	62–67
Women	24	107	81–121	63.4	55–67
Class III					
Men	11	131	108–150	67	63–72
Women	13	111	100–139	62.5	59–62
		Charleston			
Class I					
Men	4	138	128–150	67.8	67.5–68
Women	19	133	110–180	64.2	61 –67.5
Class II					
Men	12	166	145–215	68.5	62 –72
Women	16	158	92–229*	66.5	61 –71
Class III					
Men	6	167	144–200	68	64 –71
Women	9	145	102–204*	64	62 –69

*Only 2 women in Class II in Charleston were underweight and only one of these significantly so.

out the country. Nor did those in the lower classes have the maximum servings of meat, poultry, fish, and egg. In Class I, there was about two-thirds serving of fish or poultry and about one-third egg a person a day. Those in the middle class obtained about one and a half servings of the flesh foods and about half an egg per person per day, while those in the third class obtained about two servings of flesh foods and one whole egg.

According to the national sample, there was available in 1955 about 155 gm. fat per person a day. This was about double the average for all the families studied in South Carolina, but only one-third more than the average for the families in Class III considered alone. In the present case, of course, all of the fat apparently was consumed, while for the country as a whole this may not be true.

In each region of the country, the calories were considerably higher than those reported here, as was the percentage of the total from fat. The range of calories from fat for the different regions was from 42 to 45 per cent of the total, whereas here, the average was 31 per cent. This may be explained in part, as noted earlier, by the fact that these families did not regularly eat pastry or cake.

In general, it is apparent that these diets of the Negroes studied in South Carolina are less generous than for those in various parts of the country as a whole, at least as judged from foods reaching the kitchens. Possibly this places the intakes of the

TABLE 6 Percentage deviation of weights of adults in Haiti and Charleston in relation to commonly accepted standards (6, 7)

SUBJECTS	SUBJECTS WHOSE WEIGHTS WERE					
	Normal to 5% below	From 5 to 20% below normal	More than 20% below normal	Normal to 5% above	From 5 to 20% above normal	More than 20% above normal
	Haiti					
	%	%	%	%	%	%
All men	49.9	43.6	7.4	0	0	0
All women	35.2	47.9	9.9	2.8	2.8	1.4
	Charleston					
All men	24.0	13.6	0	26.0	18.2	18.2
All women	0	22.8	2.3	29.0	15.9	29.5

South Carolina families somewhere between the average diet in the United States and that reported for Haitian families.

Summary

Information concerning the diets of American Negro families living in and near Charleston, South Carolina, has been reported. These diets have been compared with those of lower class families in Haiti. The diets of the American Negroes differed significantly from those of the Haitians in the following respects:

(a) The caloric values were distinctly higher.

(b) The amount of fat was greater at each economic level, although the average percentage of total calories obtained from fat was the same for the two areas as a whole.

(c) A larger amount of fat was obtained from animal sources, being largely from pork in contrast to cottonseed oil and avocado pear in Haiti.

(d) The diets provided a different balance of fatty acids, with somewhat less linoleic acid.

(e) The protein intakes were higher.

(f) The diets contained from six to twenty times as much cholesterol.

(g) A greater proportion of the carbohydrate was obtained from enriched cereal grains rather than from fresh roots and tubers and plantain as was the case in Haiti.

(h) The diet apparently provided only refined salt as a seasoning whereas in Haiti crude sea salt was used.

It seemed apparent that the diets of the families studied in South Carolina were considerably less generous in certain constituents than are the diets of those in many sections of the United States, judged on over-all food purchases.

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BIOGRAPHICAL SKETCHES FROM THE HISTORY OF NUTRITION

Axel Holst—September 6, 1860–April 26, 1931

The diseases of scurvy, beriberi, rickets, and pellagra have been known for centuries, but their identification as a result of dietary deficiency was the discovery of this century. Funk introduced the term "vitamine" in 1912, but already some solid groundwork had been laid. Eijkman and Grijns in the Dutch East Indies had cured polyneuritis in fowls (1897) by substituting brown rice for polished rice in the diet of the birds. However, they did not know what was in the brown rice that was curative; in fact, they thought at first there was something toxic about the white rice.

The Norwegian government at the turn of the century was concerned about the condition of "ship beriberi" which occurred on naval and merchant ships. Axel Holst, Professor of Hygiene at the University of Christiania (now Oslo), was requested to investigate the problem. In 1902, Holst had visited the laboratories of Eijkman and Grijns, but he chose to experiment with guinea pigs rather than fowl, thinking that the reactions of guinea pigs might be more like that of human beings. The guinea pigs fed on a diet of a single cereal developed a disease, but it was not beriberi; it was similar to scurvy. The animals lost weight, showed loosening of teeth, hemorrhage throughout the body, and changes in bone structure resembling that seen in human beings with scurvy. When the fresh foods which had been found to cure human scurvy—fresh cabbage, carrots, greens, or fresh fruit juices—were added to the cereal diet, the scurvy was cured. For the first time, a condition comparable to human scurvy could be produced at will in an experimental animal, and foods could be tested for antiscorbutic activity. This was the contribution of Axel Holst, pioneer in vitamin research. Lack of support and pressure of administrative duties caused Holst to discontinue these studies.

Axel Holst was born at Christiania, Norway, September 6, 1860. His father and grandfather were physicians; thus it was natural that he, too, should study medicine. When he passed his final examinations in 1884, he was appointed assistant in the Institute of Pathology and Anatomy in the Government Hospital in Christiania. Three years later he obtained a fellowship in bacteriology at the University; in 1890 he wrote a handbook of bacteriology and then received a travelling scholarship to study at European laboratories. He received the M.D. degree from the University of Christiania (1892); his thesis title was "New Experiments with *Streptococcus* from Human Infections." When only thirty-three years of age, he was appointed Professor of Hygiene and Bacteriology at the University of Christiania and remained in this position till his retirement in 1930. In 1886, he married Anna Midelfort.

Holst was a brilliant and colorful personality. At 38, he was President of the Norwegian Medical Association (1898) and held this office again in 1902. He was the Norwegian representative at many international congresses. He had enthusiasm and interest in his work; he was an able administrator and an eloquent and witty speaker. He died at the age of seventy in Oslo, Norway, on April 26, 1931.

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A Population Study

Atherosclerosis and Diet[1]

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GRANT AND I have published in this JOURNAL dietary surveys of two Negro populations, one in Haiti (1) and the other in the Charleston area of South Carolina (2). These surveys were part of a broad research investigation into the incidence of atherosclerosis in these populations and the possible role of dietary factors in the genesis of that disease. These particular population groups were selected because they represent a single race of people living under vastly different civilizations, that in Haiti being characterized by privation, undernutrition, a high incidence of infectious and deficiency diseases, and the more leisurely, less stressful tempo of tropical living. Any observed inequality in the incidence of coronary disease in these two groups might therefore be properly attributed to differences in environment—whether that be primarily diet, stress, climate, or whatever—since the two peoples are of a common racial origin in Africa.

Atherosclerosis, principally through its manifestations in the coronary arteries causing "heart attacks" and in the cerebral arteries causing "strokes," is the leading cause of death in the United States today. Annually it accounts for a greater toll of lives than cancer, tuberculosis, poliomyelitis, and automobile accidents combined. That this may not be true in all populations of the world has been suggested by various epidemiologic studies indicating that clinical manifestations of the disease are much less frequent and even rare among, for example, Orientals, certain primitive tribes of Africa, and other populations not yet engulfed in what we choose to call "modern civilization." More specifically, diet has been repeatedly indicted as the major factor in the etiology of atherosclerosis—principally the fat content of the diet. All this evidence has been abundantly reviewed and summarized in the medical literature (3-5). During the last dozen years especially, the concept has grown up that high dietary intakes of cholesterol and fats lead to high levels of these substances in the blood, and that they are responsible for causing or accelerating the development of atheromatous lesions in the arteries. There is much evidence to support this concept, not the least of which is the high lipid content of the lesion itself.

However, several missing links in the chain of evidence are conspicuous. One is the inescapable fact that many patients (perhaps almost half) with even advanced atherosclerosis show no demonstrable abnormality in their blood fats. Another is the familiar gulf between animal experiments and human applications. Lesions produced in animals by fat-feeding are similar though not identical to those of human atherosclerosis but do not, for some reason, ordinarily give rise to thrombosis and infarction. Furthermore, thrombosis is known to occur at times in quite normal blood vessels. Obviously, the problem is not solved by any of our current concepts of etiology or treatment of atherosclerosis; coronary disease continues to lead the list of causes of death among physicians themselves.

The main purpose of this investigation was to measure the prevalence of atherosclerosis in the coronary arteries and aortas of representative samples of these two populations, and to do this by pathologic rather than clinical criteria.

Method

One may grade the severity of atherosclerosis at autopsy according to the number of plaques in an artery and the resultant degree of occlusion of its lumen. The system of grading, as well as the basic problem in the coronary arteries, are illustrated in Figure 1. The severity of the disease in the aorta can be gauged by the number and size of plaques. Criteria for grading are discussed further in other publications (6-8).

The coronary arteries and aortas from 139 autopsies of Negro adults at the Medical Center Hospitals of the Medical College of South Carolina were compared with those of 128 autopsies from the Hôpital General of Port-au-Prince, Haiti. Routine autopsies,

[1]The chief support for this research came from a special grant from the South Carolina Heart Association. Presented at the 41st Annual Meeting of The American Dietetic Association in Philadelphia, on October 22, 1958.

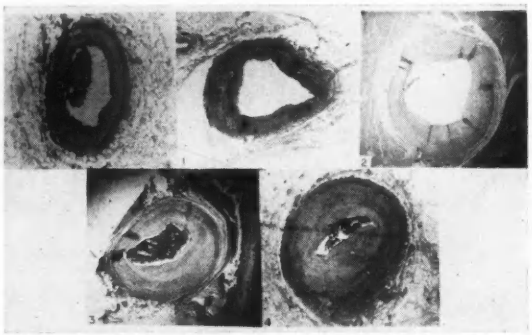

FIG. 1. *Photomicrographs of coronary arteries in cross-section, illustrating grades of atheromatous involvement and progressive occlusion of the lumen. In the upper left (graded 0) a normal vessel is shown for comparative purposes. Illustration through the courtesy of the* Southern Medical Journal *(7).*

covering all types of mortality of subjects over twenty years of age, were utilized as samples of the two populations. To make the evaluation as objective as possible, the degree of atherosclerosis in these vessels was graded on the basis of zero to 4 by the same pathologist, with the age, sex, country of origin, and clinical diagnosis of individual specimens remaining unknown to him. Not until the grading had been completed and all data put on punch cards for analysis were the results of the investigation known to the participants.

Dietary surveys were carried out in the two population groups with particular care to include proportions of subjects from the various economic levels and rural and urban categories comparable to those of the autopsy series. The dietary information in both surveys was obtained primarily by actual observation and weighing of foods in the homes, checking these findings against family budgets and the costs of these foods in the market place, and secondarily by interviews with physicians, nurses, agronomists, and the homemakers themselves. Results of these dietary surveys are reported separately (1, 2).

Results

In Figures 2 and 3 are displayed the average grades of coronary and of aortic atherosclerosis found in the autopsy specimens of Haitian and American Negroes. These are arranged according to age decades and sex, the last two decades being combined because of the smaller numbers of specimens.

It is evident that coronary grades of the American subjects average almost double those of the Haitians, and that this relationship holds true roughly for both males and females and at all age decades. The pattern of development of the disease, however, is distinctly different when the two sexes are compared: men show higher grades of severity early in life and tend to reach a plateau in the forties,

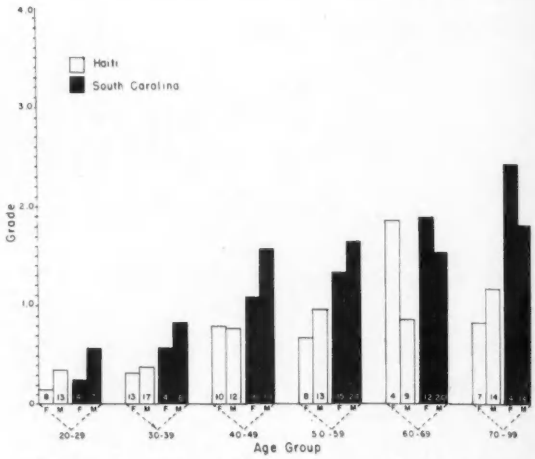

FIG. 2. *Average grades of coronary atherosclerosis found in autopsy specimens of Haitian and South Carolina Negroes (Courtesy of* Southern Medical Journal).

while women begin at the lowest levels and show an almost straight line ascent to the highest grades in later life. The same trend is evident in the specimens from both countries.

Substantiating the grades of coronary sclerosis were the findings in the myocardium. Of the 267 hearts, 36 showed evidence of fibrosis, scarring, or gross infarction of muscle tissue. Twice as many of these (24) were from the South Carolina autopsies, and males predominated throughout.

Most surprising was the discovery that the corresponding aortas from the two countries showed quite similar degrees of atheromatous involvement (Figure 3), with the Haitian group averaging a little higher in the younger age decades, about equal in middle life, and slightly lower above age seventy. Also, one's gender appears to play less of a role in aortic than in coronary atherosclerosis.

Several secondary findings are of interest. Grades averaged slightly lower for specimens from rural than urban environments and also a little lower among subjects from the bottom (Class I) economic levels. These differences, though comparatively minor and based on relatively few specimens, were observed in both populations, particularly in the grades of coronary arteries. Average weight of hearts (in the preserved state) was strikingly unequal: 269 gm. for the Haitian, 328 gm. for the South Carolina specimens. Perhaps in part this may reflect the lower body weight of the Haitian people noted during the dietary surveys. No consistent correlations could be found between heart weight and degree of atherosclerosis in either the coronary vessels or aorta.

Discussion

If, as is generally believed, the basic process of atheroma formation is the same in the coronary

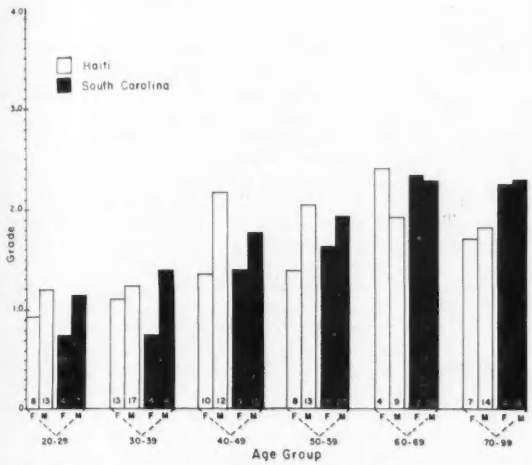

FIG. 3. *Average grades of aortic atherosclerosis found in autopsy specimens of Haitian and American Negroes (Courtesy of the* Southern Medical Journal).

arteries as in the aorta (the fatty infiltration and degeneration of the intima, the fibrous proliferation, ulceration and calcification) and if this process is mediated or accelerated by high dietary and blood fats, one would expect results in the aortas to parallel those in the coronaries. Such was not observed in our study. The difference between the Haitian and American subjects in coronary manifestations is a highly significant one, statistically. That the corresponding aortas did not differ comparably suggests the importance of factors other than diet in the genesis of atherosclerosis. Certainly if this apparent predisposition of the American subjects to coronary disease is due to the higher content of fat in their diet, we need to revise our concepts of what constitutes a "normal" diet.

Logically one might also consider differences in structure and function between the aorta, which is a more or less passive elastic tube, and the coronary arteries which are known to actively constrict in response to vasomotor and perhaps humoral stimuli. Atheromatous plaques characteristically are distributed irregularly, often somewhat segmentally. This fact, in itself, indicates that local conditions in the blood vessel, as well as the blood flowing through it, may be implicated in atherogenesis. The two factors are not necessarily mutually exclusive.

To single out diet among all the environmental differences as the agent responsible for causing or accelerating the progression of the atheromatous process seems unjustified in the present state of our knowledge. The demonstration that histologically similar lesions can be produced experimentally in some animals by fat-feeding, and that atherosclerosis is more prevalent in patients with diabetes mellitus, hypothyroidism, and other diseases characterized by high blood lipid levels, does not warrant indictment of the diet of an entire population. Nor, it seems to me, is the wide spread use of extremely low-fat and low-cholesterol diets as a routine treatment for coronary disease actually justified. Such diets are most unpalatable and, as one patient remarked, "You don't actually live longer—it just seems longer."

TABLE 1 Average daily intake of Haitian and South Carolina Negroes in terms of calories, protein, carbohydrate, and fat

COMPARISON	HAITI	SOUTH CAROLINA
Calories	1572	2118
Protein (gm./day)	45	69
Total calories from protein (%)	11	13
Protein from animal sources (%)	24	44
Carbohydrate (gm./day)	239	287
Total calories from carbohydrates (%)	60	56
Fat (gm./day)	57	73
Total calories from fat (%)	30	31
Fat from animal sources (%)	16	82
Linoleic acid (gm./day)	16	7
Total fat as linoleic acid (%)	27	9
Cholesterol (mg./day)	60	394
Underweight (% of subjects weighed)	28	19
Overweight (% of subjects weighed)	4	36

Granted that the Haitian and American Negroes are essentially the same genetically, somewhere in the environmental differences of these populations must lie a factor or factors of major importance in the etiology of coronary sclerosis. The Americans not only eat more foods of animal origin, more cholesterol, fat, and total calories (Table 1), but their mode of life contrasts in many ways with that of the average Haitian (8). The vast majority of Haitians are poor; they have an intimate acquaintance with privation and hunger. Their peasant civilization is far more primitive, less complex than that of the members of their race in the United States. Most of the work in Haiti, including transportation, is accomplished by human muscles rather than by machines. The tempo of tropical living is slower, with little seasonal variation. Comparatively, the Haitian peasant sleeps more, worries less, and the stress of his adversity is seemingly ameliorated by his remarkable adjustment to it. How much of a role these environmental factors—and perhaps Haiti's more rigorous "survival of the fittest"—may play is as yet uncertain, but from such epidemiologic studies may come important clues to the etiology of coronary heart disease.

Summary

Pathologic evaluation of the degree of coronary and aortic atherosclerosis in 267 routine autopsies of Negroes from Haiti and the Charleston area of South Carolina revealed almost double the average severity of coronary disease among the American members of this race. This held true generally for

both men and women and at all age decades over twenty. No comparable difference was observed in the aortas of the same subjects.

Prominent environmental differences in these two population groups include: stress, tempo of living, physical exertion, and competitiveness, in addition to diet.

The results of this investigation suggest the importance of factors other than diet in the etiology of coronary disease.

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Dietitians in Fractions

Half a dietitian, two-fifths a dietitian—who are they? What can they do? At Meadowbrook Hospital, a 600-bed hospital in Nassau County, New York, two part-time dietitians were employed when it was impossible to fill a vacancy in the Dietary Department with a qualified dietitian. These part-time dietitians both have master's degrees and diversified nutrition experience in hospital, clinic, and public health work.

One works for 4 hr. Monday through Friday from 9 A.M. to 1 P.M. In addition to helping in the modified diet kitchen, she serves as nutrition consultant to antepartum patients and in the out-patient clinic. Weekly classes are held for patients in the solaria of the various floors to acquaint them with their dietary regimens and to explain the exchange lists to diabetic patients.

The second part-time dietitian accepted employment on Saturdays and Sundays, with hours from 11 A.M. to 7 P.M., thus making it possible for the full-time dietitians to be free over the week-ends or to work the early shift. This is as much an advantage to the part-time dietitian as to the hospital, since she has small children and can leave them for outside work only when her husband can cooperate by "baby sitting."

The duties of both part-time dietitians include visiting patients on modified diets to learn their food habits and individual likes and dislikes. They then work with the patients, adapting the diets to their needs as indicated by their nationality and/or religious food traditions, income status, and so on. The week-end dietitian also works with the parents of hospitalized children to explain prescribed therapeutic diets to be followed when the children return home. The part-time dietitian who functions in a special capacity—that of being involved with the patient and his personal problems rather than the institution and its multitude of impersonal problems—appears particularly well situated to achieve success in this area.

Working part-time has many advantages for the dietitians themselves. It affords them a means of retaining their professional contacts and keeping up with new standards in the field, all of which will serve them well if they later reenter the field on a full-time basis when family demands are lessened. Certainly, it has proved advantageous to our hospital and may also prove the answer to problems in others where the shortage of adequately qualified dietitians prevents proper staffing of the dietary department, with the only other alternative being the employment of poorly qualified persons.—*Juanita Haymond, Meadowbrook Hospital, Hempstead, New York.*

Skin Disease and Nutritional Therapy[1]

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THE SKIN is a principal line of defense against the entrance of foreign substances, and it protects against almost every conceivable physical and chemical stress. When damaged, it has remarkable ability to repair itself, thus reflecting its dynamic metabolic activity. Through its sweat glands and blood vessels, the skin provides the principal means by which the body heat is regulated and through its nerve endings permits sensation of contact with the external environment perceiving heat, cold, pain, and other stimuli. The skin also reflects the emotions, such as embarrassment, fear, anger, anxiety, and, unfortunately, a person's age as well. We are even individualized by characteristic skin markings—our fingerprints.

Structure of the Skin

A brief review of the structure and physiology of the skin may be helpful in understanding the changes that occur in skin disease (1, 2). The skin is composed of three principal layers: (a) epidermis; (b) corium (dermis or true skin); and (c) the subcutaneous tissue.

The epidermis is a thin layer averaging about 0.2 mm. in thickness, in which the greatest metabolic activity of the skin is located. From the outside inward, the epidermis is composed of cell layers, i.e., (a) stratum corneum, (b) stratum granulosum, (c) prickle cell layer, and (d) the basal cell layer. Melanocyte cells, responsible for the production of skin pigment, are located in the basal cell layer. The epidermis overlies the corium or dermis in a wave-like pattern. The principal metabolic activity of the epidermis is the production of the protein keratin, which is the chief component of the stratum corneum. Keratin, by its toughness, elasticity, and resistance to chemical change, provides great protection. It is structurally integrated into the flat, shrunken, non-nucleated dead cells of the stratum corneum. The process of keratinization is, therefore, concerned with the production of keratin and the gradual elaboration and replacement of the stratum corneum from the basal cell layer of the epidermis. This response is continuous and may vary with the stimuli on the epidermis.

There are two kinds of skin appendages derived from the epidermis: (a) glandular, i.e., apocrine and eccrine sweat glands and sebaceous glands; and (b) keratinized structures, i.e., the hair follicles and hair and the nails.

The corium or secondary protective layer supports the vascular bed and peripheral nerves of the skin and the epidermal appendages. The corium is also a large potential storehouse for water, blood, and electrolytes. This is well exemplified in the individual with edema.

The subcutaneous tissue provides further support and is an excellent heat insulator, a good shock absorber, and a storehouse of calories in the form of fat.

Relation of Nutrition to Skin Disease

From primitive times, man has related the gloss and sheen of the hair coat and skin of his pets and herds with good dietary practices and good general health (3). In experimental nutrition studies, a change in the hair coat and skin of animals has often been the first and most outstanding feature of deficiency disease. Unfortunately, these skin and hair changes are so nonspecific that they rarely permit a specific diagnosis of an isolated nutritional deficiency. However, because they have appeared with poor diet, dermatologists have naturally been much influenced by the use of modified diets, vitamins, and minerals in nearly every conceivable dosage level and combination in an attempt to manage and treat skin diseases. Since accurate diagnosis is difficult under such conditions and since many skin diseases are of unknown etiology, much of this form of therapy has been doomed to failure and, indeed, has tended to place the role of nutrition in the therapy of skin disease in disrepute in many quarters.

[1]Presented at the 41st Annual Meeting of The American Dietetic Association in Philadelphia, on October 22, 1958.

While dermatoses related to dietary deficiencies can appear on any part of the body, they do for the most part tend to be located over areas of irritation or excessive stimulation. Lesions are most apt to appear on the backs of the hands, on the front and backs of the wrists, on the elbows, over the face, around the neck, under the breasts, over the knees and feet, and in the perianal region. These lesions are often bilaterally symmetrical and tend to be separated from healthier appearing skin by a sharp line of demarcation. They are generally accompanied by burning, itching, and pain (4).

Protein Deficiency

We are all aware of the classical appearance of edema when the plasma level of albumin falls much below 2.5 gm. per 100 cc. It has also been shown that long exposure to experimental diets low in protein results in extensive skin changes (5). These changes are characterized by dryness, scaliness, inelasticity, and a gray, pallid appearance, suggestive of old age. Also noticed is a blotchy, dirty, brownish pimentation, which may appear anywhere on the body, but is most often seen on the face.

Widespread throughout the technically underdeveloped areas of the world, and especially in children between the ages of one to four, is a protein deficiency manifested in the extreme by the disease known as kwashiorkor (6). This disease is characterized by faulty growth, marked liver enlargement with fatty infiltration, gastrointestinal disturbances, including diarrhea, and extensive skin changes with hypopigmentation and dryness of the hair and skin. Therapy for this disease is an adequate amount of protein, particularly of animal origin, although mixtures of selected vegetable proteins prove quite satisfactory. The basic question here is how to get into the basic diet of millions of people an adequate level of protein of proper nutritional value. This is undoubtedly the single most challenging problem to our nutritionists, economists, agriculturists and, yes, our politicians, for the very peoples involved are those we need in our camp in the global conflict.

Another relatively recent development in the nutritional therapy of a disease involving the skin has to do with a congenital or genetic defect in tryptophan metabolism. In phenylpyruvicoligophrenia, one sees marked skin changes characterized by eczematous skin eruptions and evidence of inadequate melanin formation. In this condition, a genetically controlled metabolic block limits the conversion of the amino acid phenylaline to tyrosine and is accompanied by an increased urinary excretion of phenylpyruvic acid. A much more serious defect, however, in patients with this disease is the early development of feeble mindedness. Diets that are restricted in phenylalanine and supplemented with tyrosine are remarkably effective in correcting many of the manifestations of this disease, but it must be emphasized that early diagnosis and treatment is essential if feeble mindedness is to be prevented.

Lipids

Several types of skin lesions, eczematous in character, have been associated with the long-term consumption of diets low in fat (7). It has also been noted that individuals who have excessive fat losses associated with idiopathic steatorrhea frequently have erythematous eczematous lesions (8). It has been difficult to correlate these skin lesions with any specific biochemical abnormality. For example, while there is no significant difference between the level of blood lipids of eczematous and non-eczematous infants, the amount of unsaturated fatty acids is considerably lower in eczematous infants, particularly the levels of arachidonic and linoleic acid (9). This observation has encouraged the use of fats and oils rich in these two substances in treating eczema in infants—unfortunately not with uniformly good results.

Studies of phrynoderma or hyperkeratosis follicularis have shown that the increased incidence of this disease is correlated with a lowered intake of essential fatty acids. While vitamin A has often been proposed in the treatment of this disease, it is effective in relatively few cases. However, recent studies in India, where this disease is common, have shown that the administration of raw linseed oil or linoleic acid produced marked clinical improvement in two to four weeks and cured many patients in four to twenty-four weeks (10). Even better results were obtained when pyridoxine was combined with essential fatty acid therapy.

In view of the fact that vitamin A in huge doses has been used in treating certain dermatologic lesions, a word of caution must be raised. Doses of 100,000 to 300,000 I.U. per day may produce signs and symptoms of vitamin A intoxication, which, in fact, resemble the lesions of vitamin A deficiency as far as the skin is concerned. In addition, bone changes occur, which reduce their density and make them brittle.

Of interest also is the fact that an excessive intake of pro-vitamin A, carotene, produces a yellowish discoloration of the skin and carotenemia. This, at first glance, may be confused with jaundice. It represents an inability of the body to convert carotene rapidly enough to vitamin A in the face of a large carotene intake. This problem is most often encountered in children as a result of overenthusiastic feeding of carotene-rich foods, such as carrots. It is corrected merely by the elimination of such foods.

Large doses of vitamin D have also been proposed in the treatment of certain skin lesions. Such prac-

tices must be viewed wih concern, because of lack of indication for such therapy, generally poor therapeutic results, and the very real danger of vitamin D toxicity with alterations in calcium metabolism, and subsequent calcification of soft tissues.

Xanthoma of the skin, characterized by round or oval, solid, firm, reddish-brown papules are often distributed over the buttocks, elbows, and knees and may be seen in patients with diabetes or hypercholesterolemia from almost any cause; a familial form of xanthomatoses is also known. Analyses of these xanthomatous lesions show an excess of fatty acids, cholesterol, and other lipid substances. Their deposition probably reflects the high cholesterol content of blood and other lipids in patients with disordered fat metabolism, such as may be seen in poorly controlled diabetics and in patients with other abnormalities of lipid metabolism, some of which may be familial in origin. Some observers have reported the marked improvement and even disappearance of these xanthoma when the patient is placed on a low-fat diet for long periods (11). Unfortunately, this is often difficult to achieve and results are most discouraging.

Obesity and Skin Disease

The obese patient seems to be excessively plagued with skin disorders. With obesity, one has excessive fat folds with resultant intertrigo, caused primarily by friction between the skin surfaces and by the maceration of the skin from accumulated moisture in these folds. These changes often lead to infection, particularly with staphylococcal organisms or to fungus diseases, such as dermatophytosis and moniliasis. In addition, many obese patients activate a latent diabetic tendency with all of the associated dermatoses. Obese people, because of their thick subcutaneous layers of fat, tend to become easily overheated and perspire more profusely. This produces undesirable effects on normal skin, exaggerating areas of inflammation and producing skin rashes. Prickly heat or miliaria rubra is a commonly recognized evidence of sweat retention.

Obviously, the therapy for this problem is correction of obesity by decreased caloric intake and increased exercise. Unfortunately, this is more easily said than done, and the therapy and management of obesity still remains one of the most difficult problems facing the physician and dietitian.

Vitamins and Skin Disease

The search for vitamins has always captured the imagination of the research scientist, and because deficiencies of these substances were so often associated with skin and hair changes in experimental animals, it was an easy transition from animals to man by dermatologists and physicians eager to treat difficult dermatologic problems. Hence, vitamins in every form, combination, and dosage level have been used in the hopeful treatment of skin diseases. As might be expected from this rather haphazard approach, a great variety of results have been reported. These are characterized mostly by their inconsistency. Certain salient features, however, remain to be discussed.

VITAMIN A

In vitamin A deficiency, the skin may first be dry and slightly roughened, after which eruptive lesions appear suddenly over rather localized areas of the body. The eruption is generally symmetrical in distribution and is distinguished by an excessive keratinization (12). Especially marked is the hyperkeratosis of hair follicles which may contain intrafollicular keratotic plugs. These plugs may project from the hair follicles as horny spines, while others are covered with a loosely adherent scale which bridges the included follicle. When these plugs are expressed from the hair follicle, a gaping cavity is left and at first glance this eruption may resemble acne. It differs from acne, however, in that the skin is much drier and there is an absence of pustules. These lesions may also be confused with a follicular type of ichthyosis, not vitamin A deficiency (13). As might be anticipated, those skin lesions associated with deficient intake of vitamin A respond to therapy with this vitamin.

The use of vitamin A in treating other diseases associated with excessive keratinization, particularly those involving the hair follicle, have not always yielded consistently beneficial results. Such therapy has been of some therapeutic value, however, in pityriasis rubra pilaris and Darier's disease. While such therapy may provide symptomatic improvement, it is rarely curative. Again, as pointed out above, one must warn against the long-term dosage of massive amounts of vitamin A (14). This is a potentially toxic material.

RIBOFLAVIN

The symptoms of riboflavin deficiency may be divided into three groups: oral, cutaneous, and ocular (15, 16). The oral changes are angular stomatitis and cheilosis. It should be emphasized that angular stomatitis and cheilosis are not characteristic of riboflavin deficiency alone, and other possible causes of these lesions must be ruled out. Tongue changes are noted in riboflavin deficiency, particularly characterized by purplish or magenta glossitis (17). The dermatitis of riboflavin deficiency is primarily a seborrheic dermatitis with many fine greasy scales on an erythematous base.

Of considerable interest are the results of nutrition studies in the Far East by Pollack and his coworkers (18). These studies, carried out on Chinese Nationalist Army troops on Formosa, clearly indi-

cate a high incidence of riboflavin deficiency, and an interesting syndrome called oral-genital syndrome has been described. A high incidence of scrotal dermatitis was observed in individuals who also had angular stomatitis, cheilosis, magenta tongue, and nasolabial seborrhea. When the biochemical findings on blood and urine were correlated with the clinical findings in the oral-genital syndrome, it was evident that a riboflavin deficiency was involved.

Niacin deficiency was also noted in significant numbers in this study. Enrichment of the rice in the diet with riboflavin and niacin rapidly eliminated the signs attributable to the deficiency of these vitamins. It is now becoming more evident from nutrition surveys conducted in many areas of the world that riboflavin deficiency is one of the most common seen.

NIACIN

The classical triad of dermatitis, dementia, and diarrhea has long been associated with pellagra, which, fortunately, has practically been eliminated from the United States. Diets rich in proteins containing sufficient tryptophan also lead to benefit in the treatment of this disease.

Pellagra is generally considered a multiple deficiency disease, with niacin being specific for the treatment of the gastrointestinal, dermal, and mental signs and symptoms.

The skin change seen is that of a chronic cutaneous lesion characterized by thick, inelastic, fissured skin, which becomes deeply pigmented. This pigmentation is particularly pronounced in areas exposed to sunlight (19). Infection is often superimposed on these lesions, and they occur primarily at the trauma points of the body and in areas exposed to sunlight.

The tongue and mucosa of the mouth in acute cases of pellagra are bright red, swollen, and often ulcerated and secondarily infected. The disease responds well to niacin therapy and/or to diets containing ample amounts of animal protein rich in tryptophan.

Another interesting aspect of niacin therapy is the dermatologic effect of producing a marked cutaneous vasodilitation with extensive flushing of the skin. This characteristic is not shared by nicotinamide.

VITAMIN B_6

The effects of pyridoxine deficiency in a number of dermatoses have been studied, and it is reported that some kinds of eczema, particularly eczema of the seborrheic type, may improve, after having failed to respond to local treatment, when pyridoxine is given intravenously or subcutaneously in rather large doses of 24 to 50 mg. (20). Pyridoxine deficiency has been produced in human subjects by the use of pyridoxine antagonists and in association with this deficiency, there is seen a seborrhea-like lesion about the eyes, nasal labial fold, and mouth, with extension to the eyebrows and skin behind the ears. Many of these cases of seborrheic dermatitis responded well to the local application of pyridoxine in an ointment base, while little effect was noted when the vitamin was given orally or parenterally (21).

OTHER VITAMINS

A deficiency of vitamin K resulting in impaired synthesis of prothrombin may result in a cutaneous purpura reflecting impairment of the coagulation mechanism.

No clear-cut cutaneous manifestations have been reported associated with vitamin E deficiency.

While deficiencies of pantothenic acid and para-aminobenzoic acid are related to changes in hair color in animals, no such effect has been noted in the management of the graying of human hair.

In ascorbic acid deficiency, there is impairment of the structure of the ground substance of the connective tissue and in scurvy the skin may show secondary changes, such as petechial hemorrhage and inelasticity. Ascorbic acid is also concerned with the metabolism of the amino acids, tyrosine and phenylalanine, which are precursor substances for the formation of the melanin pigments of the skin.

Other Skin Problems

ALLERGY

Food allergy may be the cause of many skin lesions, including atopic dermatitis, urticaria, infantile dermatitis, and eczema (21).

The allergenic properties of a food depend on the nature of the food, the quantity and concentration of the food in the diet, and the duration of exposure to the allergenic substance. In addition, one must consider the problem of host susceptibility. A familial history of allergy should be considered an important danger signal indicating special care in the feeding of infants and small children, particularly during the period of "physiologic, immunologic immaturity."

Food allergens may enter the body by way of the gastrointestinal tract, and derangements of the gastrointestinal system are among the prime factors leading to food allergy.

Almost all foods and beverages have at one time or another been incriminated as being allergenic, but those that are most considered are: unaltered egg protein, milk protein, fish and seafood, wheat, corn, tomatoes, spinach, cabbage, asparagus, rhubarb, celery, onion, garlic, and citrus fruits and juices.

When the allergenic role of a food has been established, it may be corrected by (a) elimination of the food in question, or (b) by specific densitization. Unfortunately, food elimination as a means of therapy may lead to rather bizarre and unusual dietary patterns. There must be careful supervision of the diet under these circumstances to insure adequate and balanced nutrition.

To indicate the really great difficulties and complexities of dermatology, two important dermatologic problems with unknown etiology and for which there is no specific proved therapy deserve mention. These are psoriasis and acne vulgaris. These are also selected because diet has been so extensively involved in their management.

PSORIASIS

Psoriasis is a chronic, inflammatory skin disease characterized by the development of reddish, erythematous patches covered with raised, silvery-white, dried scales. Cracking and fissuring of the skin in the extensive psoriatic area is common. The disease affects primarily the extensor surfaces of the body and the scalp, although it may be widely disseminated.

While such patients have failed to show any clear-cut metabolic disturbance as the underlying cause of this dermatitis, some interesting studies have been conducted. For many years it has been demonstrated that a diet free from fat or very low in protein has a moderately therapeutic effect in psoriasis (23). Schamberg (24, 25) has been the outstanding proponent of the low-protein diet, and he has indicated that psoriatic individuals give definite signs of abnormal nitrogen retention. Patients with psoriasis, placed on diets containing no more than 4 or 5 gm. nitrogen per day, with an adequate caloric intake, were able to maintain their weight and experienced a gradual disappearance of the lesions of this disease. Unfortunately, when this very restricted dietary regimen is discontinued, the disease returned.

Recent findings have shown that the psoriatic scales containing keratin-like protein, have an unusually high content of sulphur amino acids. In this connection, it is worth noting that the standard therapy of psoriasis with coal tar and ultra-violet light are both known to disrupt the metabolism of the sulfhydryl group and may provide a clue to understanding and therapy of this disease. It has also been reported that there is an interesting relationship between decreased urinary secretion of sulphur and of ascorbic acid in patients with psoriasis (26). Experiments with diets containing a maximum of 250 mg. sulphur per day when eaten by patients for several months have yielded inconsistent results.

Attempts are now in progress to feed psoriatic patients for extended periods on purely synthetic diets with known intakes of amino acids and other nutrients. By such an approach, the role of sulphur amino acid metabolism in psoriasis may be clarified.

ACNE VULGARIS

Acne vulgaris is a chronic inflammatory disease of the sebacious glands and the pylosebacious structures of the skin and is almost always associated with seborrhea. This is predominantly a dermatologic disease of youth, particularly teen-agers and associated with it are all of the emotional and psychologic factors so prevalent in this age group. It is a rather common clinical experience that gross dietary indiscretion, particularly in the form of taking too much cake, candy, ice cream, and chocolate aggravates an existing acne and strongly suggests that the skin condition may be associated with a disturbance of carbohydrate metabolism (27). Not all agree on this and, in fact, improvement has been reported in patients eating a high-carbohydrate diet (28).

It is also thought that acne is made worse by diets high in fat. Unfortunately, low-fat diets have not been particularly effective in the management of this problem. It may well be that the principal effect of high-fat diets is to permit excessive weight gain in children with acne, who are often withdrawn, quiet, and relatively inactive because of the emotional trauma that is associated with the stigma of this disease. It has been pointed out that the Eskimo diet is mostly fat and protein, yet Eskimos have relatively little or no acne. One cannot doubt that psychoneurogenic factors play a significant role in producing exacerbation of acne. In addition, fatigue and exhaustion are often predisposing factors.

Since we have no specific knowledge as to the cause or treatment of acne, it seems most reasonable to place people with this disease on a well balanced diet which does not contribute an excessive amount of calories, so that weight gain is not excessive. Such a diet should contribute all of the nutrients in the Recommended Dietary Allowances. Perhaps most important of all, the child or individual with this disease, as with all difficult dermatologic diseases, must have the necessary psychologic lift from the physician and from his friends and family to permit him to learn to live with his disease and function as much like a normal individual as possible. Again, this is often easier said than done.

Summary

While there is little doubt that dietary deficiency, whether primary or conditioned, may be associated with dermatologic lesions which can respond to proper therapy, one must also recognize that many of the dermatoses—in fact, perhaps most—do not respond to specific therapy with vitamins or diets.

Dermatoses are certainly associated with obesity, and since this is such a common problem in this country, therapy directed at weight reduction will probably provide the best management in related dermatologic problems.

The general dermatologic changes associated with undernutrition, rather rare in this country, are extremely common in technically underdeveloped countries. Here improvement of the protein intake seems to be the most rational way of correcting this problem.

Certainly, allergies to foods may produce dermatoses, and such allergies should be ruled out if suspected either on the basis of family history or by history of the patient's food intake.

It is extremely important that every patient presenting a dermatologic problem should have a careful nutritional history, physical examination, and, if necessary, biochemical studies to rule out any evidence of nutritional abnormality.

For example, phenylpyruvicoligophrenia may be diagnosed simply and early by a simple test of the urine with ferric chloride. Early diagnosis and therapy by restricting phenylalanine will produce most gratifying results.

It must be remembered that the underlying defects related to dermatoses of unknown etiology may be the result of improper nutrition and metabolic error endured over long periods of time. Hence, their correction by diet or improved metabolism may require long and intensive therapy.

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Amino Acid Requirements[1]

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The effectiveness of food protein in meeting dietary requirements depends on a pattern of indispensable amino acids simulating physiologic needs and also—because of intimate metabolic interrelationships—on an adequate dietary supply of certain vitamins.

IT IS now generally accepted, and there appears to be no evidence to cause doubt, that dietary protein functions primarily as a vehicle for the indispensable amino acids. Nevertheless, it is well to remember that this was evident to some investigators over forty years ago. In 1914, Osborne and Mendel (1) stated: "The current trend of the investigation of the chemistry of nutrition is emphasizing the significance of the amino-acids as the fundamental factors in all problems in which hitherto the role of proteins has been involved . . . The question of protein synthesis has now become a problem of the biochemical deportment of amino-acids."

Amino Acids Classified

To the present, nutritional studies have demonstrated that all animal species under all conditions require a continuous dietary supply of eight amino acids: isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine (2-4). This list represents approximately one-third of the amino acids that are invariably present in protein. Although histidine is required for growth, and for maintenance in the adult rat and dog, it has been reported not to be needed by the adult human being (2,5). Except for adult humans, therefore, it may be implied that nine amino acids are essential dietary nutrients.

The studies of Steele (6), utilizing the radiocarbon technique, have supplied unequivocal confirmation. He showed that "carbon-tagged" sucrose was unable to supply any carbon to the above nine dietary indispensable amino acids, except to the methyl group of methionine. In contrast, carbohydrate readily furnished carbon for synthesis of those amino acid constituents of proteins now considered to be dispensable.

As noted above, the earlier experiments with histidine indicated that it was dispensable for adult human beings. The experiments leading to this conclusion involved young male college students who were able to maintain nitrogen equilibrium for limited periods on histidine-free diets (7,8). Furthermore, these same subjects, after showing a nitrogen loss on diets devoid of both histidine and isoleucine, would store nitrogen and regain positive nitrogen balance when isoleucine alone was added to the diet. As noted by Rose (9): "These experiments . . . left no reasonable basis for doubting that preformed histidine is not necessary for the maintenance of nitrogen equilibrium in adult man."

However, as pointed out by Nasset (10), animals appear to have a readily available endogenous reserve of histidine in hemoglobin. He states: "The apparent discrepancy between adult rats and humans with respect to histidine requirements may be due in part to the relative lengths of observation periods. Since man lives approximately 25 times as long as the rat, the feeding of a histidine-deficient diet for a week to a man may not be equivalent to feeding the same diet for the same length of time to a rat. To get comparable results, it may be necessary to prolong the observation of the human subject for weeks or even months."

[1]Presented at the 41st Annual Meeting of The American Dietetic Association in Philadelphia, on October 21, 1958.

Consequently, the following represents a classification of the amino acids as essential dietary nutrients:

INDISPENSABLE	SEMIDISPENSABLE	DISPENSABLE
Histidine	Arginine	All other
Isoleucine	Cystine	amino acids
Leucine	Tyrosine	
Lysine		
Methionine		
Phenylalanine		
Threonine		
Tryptophan		
Valine		

Arginine, an indispensable amino acid for birds, can by synthesized by other species, but since the rate of synthesis may be limited, a dietary supply may be necessary for maximum growth (11). Likewise, cystine and tyrosine can be synthesized by animals, provided they have a dietary supply of their respective precursors—methionine and phenylalanine. Thus, inasmuch as these particular amino acids have specific precursors required in their synthesis, and, when present in the food supply spare indispensable amino acids, they are classified as semidispensable.

TABLE 1 Average minimal daily amino acid requirements for infants (10), young adult men, (9), and young adult women (13-20)

AMINO ACID	MINIMAL REQUIREMENTS
Infants	
	mg./kg.
Histidine	32
Isoleucine	90
Leucine	120
Lysine	90
Phenylalanine (in presence of 175 mg. tyrosine per kilogram)	90
Methionine	
In presence of 15 mg. cystine per kilogram	85
In presence of 50 mg. cystine per kilogram	65
Threonine	60
Tryptophan	30
Valine	93
Young Adult Men	
	mg./day
Isoleucine	700
Leucine	1100
Lysine	800
Phenylalanine	
In absence of tyrosine	1100
In presence of 1100 mg. tyrosine per day	300
Methionine	
In absence of cystine	1100
In presence of 810 mg. cystine per day	200
Threonine	500
Tryptophan	250
Valine	800
Young Adult Women	
Isoleucine	450
Leucine	620
Lysine	500
Phenylalanine—in presence of 900 mg. tyrosine per day	220
Methionine—in presence of 200 mg. cystine per day	350
Threonine	305
Tryptophan	157
Valine	650

Quantitative Requirements

The quantitative amino acid requirements for growth of the rat, the chick, and the pig have been studied extensively. Such values appear to be on a firmer basis (12) than any similar data obtained for human beings. It is undoubtedly obvious that: (a) there are restrictions in the use of human beings as experimental subjects, and (b) many methods (3,9) applicable to the study of experimental animals are unsuitable or impracticable for investigations with human subjects.

To the present, attempts to determine the precise quantitative requirements of human subjects have been limited to infants under one year of age and to young adults. The nitrogen balance technique has been used in all such studies. The limitations involved in the application of this technique have been reviewed recently by Holt (10).

All of the values (Table 1) for the minimum requirements of infants have been obtained by the same group of investigators under Holt's leadership. The values for tryptophan, methionine-cystine, and isoleucine were obtained with diets in which the nitrogen components were supplied by hydrolyzed or degraded proteins. In contrast, the values for the remaining amino acids were obtained using diets in which the nitrogen components were supplied by L-amino acids in the proportions found in breast milk, including the dispensable amino acids (10).

The quantitative requirements for young adult males (Table 1) have been determined by the extensive and elegant studies conducted by Rose and his group at the University of Illinois (9). Special diets were devised in which the only nitrogenous constituents other than B-complex vitamins were the indispensable amino acids, plus a source of nitrogen (glycine) to take care of nitrogen for synthesis of the dispensable or non-essential amino acids. The particular amino acid under study was eliminated from the diet, and after the subject was in negative nitrogen balance, "the smallest amount capable of inducing distinctly positive balance" was taken as the minimum requirement (9). Thus, although eighteen young men required from 150 to 250 mg. trytophan per day to maintain nitrogen equilibrium, one required the maximum of 250 mg. which was taken as the "tentative" minimum for all adult males. On the above basis, Dr. Rose calculated a "safe" intake of 500 mg. tryptophan daily, and showed that a total of forty-two subjects were able

to maintain nitrogen balance on the "safe" intake, or less (9).

Several groups of workers, notably Leverton and collaborators, have investigated the quantitative amino acid requirements of young women (13-20, Table 1). Despite differences in the types of diets employed and varying ranges in caloric intake, the primary difference between the studies made with women and those with men concerns the criterion of adequacy (9). For the values determined with women, a "zone of equilibrium" was used as the criterion: "the amount of an amino acid which will keep a subject in a zone of nitrogen equilibrium, where the difference between intake and excretion is within ± 5 per cent" (16). As a consequence, many values determined by the above procedure will necessarily be low in comparison with the standard of a "distinct positive balance" used for the men (9). It will require many more studies before it is possible to establish whether the lower minimum values for women as compared with men are real, or are due to differences in the experimental procedures and criteria used by the various investigators.

Having available a set of values for the minimum amino acid requirements poses several obvious questions. First, how realistic are the minimum values? Second, in view of the improved methods now available for amino acid analysis (3), the availability of better estimates of the amino acid content of foods (21), and the close correlation of the essential amino acid contents of food proteins and their biologic value (11), can the amino acid requirements be used for practical nutrition evaluations?

It may be recalled that several workers (12) have noted the striking similarity in the amino acid composition of animals and its relationship to the pattern of amino acid requirements as determined by nutritional studies. It is evident that the amino acid needs of animals are, in the main, dependent on the composition and pattern of the amino acids in the tissues being formed during growth or maintained in adult life (2,11).

TABLE 2 **Reference pattern of amino acid requirements for human beings (tryptophan = 1.0)**

AMINO ACID	REFERENCE UNITS
Histidine	1.0
Isoleucine	3.0
Leucine	4.0
Lysine	3.0
Total sulphur-containing amino acids	3.0
Methionine	
Minimum—in presence of cystine	1.5
In absence of cystine	3.0
Total aromatic amino acids	3.0
Phenylalanine	
Minimum—in presence of tyrosine	2.0
In absence of tyrosine	3.0
Threonine	2.0
Tryptophan	1.0
Valine	3.0

Amino Acid Reference Pattern

Inasmuch as the utilization of amino acids for the synthesis and maintenance of tissue proteins is an "all or none" process, it would appear that the use of a properly determined pattern of amino acid requirements in conjunction with nutritional evaluation of protein needs and modern methods of amino acid assay should provide a sound basis for formulating practical diets that will promote the desired nutriture of humans.

As a first step in this direction, a point of reference is needed. Because of the remarkable similarity in the relative proportions of amino acids required among animals in general (12,22) and among human beings in particular, both for growth and adult maintenance, an ideal reference pattern could be one which represents the limiting value for each indispensable amino acid. The values given previously for the experimentally determined minimum requirements of infants, young men and women are such limiting values and, therefore, can serve as the basis for a reference pattern (22). Such a pattern is presented in Table 2.

The pattern is derived on the basis of giving tryptophan a value of 1.0. Any of the other amino acids could be used. However, since tryptophan is usually the amino acid occurring in proteins in least quantity and the one required in the smallest quantity, it is convenient for avoiding fractions in the pattern. The pattern as given represents a generalized form and states that for every unit of tryptophan required, 3 units of lysine, 4 units of leucine, and so on, are required daily. It is strictly qualitative and refers to the proportions of the indispensable amino acids needed, although it was derived from quantitative studies.

Value of Whole Egg and Cow's Milk Protein

It is possible to test the soundness and utility of the pattern in the following manner. Again, tryptophan is taken as the point of reference. The value of 250 mg. per day required by young men may be

TABLE 3 **Amino acid reference pattern compared with egg and milk proteins**

PROTEIN COMPARED	TRYPTOPHAN	METHIONINE	TOTAL SULPHUR-CONTAINING AMINO ACIDS	LYSINE
	mg.	*mg.*	*mg.*	*mg.*
Reference pattern	250	750	750	750
Whole egg	250*	476	831	972
Cow's milk	250†	434	592	1379

*Supplied by 15.2 gm. whole egg protein.
†Supplied by 17.7 gm. cow's milk protein.

utilized for the comparison. Then, by referring to the recent excellent and useful set of tables, *Amino Acid Content of Foods* by Orr and Watt (21), the milligrams of amino acids supplied by that amount of whole egg and cow's milk respectively (or any other food for that matter) that will supply 250 mg. tryptophan can be found. This amounts to 15.2 gm. whole egg protein and 17.7 gm. cow's milk protein (Table 3). This type of comparison indicates that for these particular proteins all of the indispensable amino acids are well in excess of the minimum requirements except methionine. For example, on the basis of the pattern, the requirement for lysine is 750 mg. per day. Whole egg protein in the amount of 15.2 gm. supplies 972 mg. lysine, and cow's milk protein in the amount of 17.7 gm. supplies 1379 mg. lysine.

For methionine, the picture is different. The 15.2 gm. whole egg protein supplies only 476 mg. However, this particular protein contains a relatively large amount of cystine, which brings the total sulphur-containing amino acids up to 831 mg., a value well above the requirement of 750 mg. Inasmuch as cystine is reported (9) to spare at least 80 per cent of the requirement for methionine, whole egg protein in the amount of 15.2 gm. per day should meet the amino acid requirements of adults.

In contrast, cow's milk protein in the amount of 17.7 gm. is low not only in methionine, but also in total sulphur-containing amino acids. The deficit in comparison with the requirement is 21 per cent. Consequently, the amount of cow's milk protein needed to meet the methionine requirement, the amino acid in which it is most limiting, is 22.4 gm. $\left(\frac{17.7}{0.79}\right)$

Thus, 15.2 gm. whole egg protein and 22.4 gm. of cow's milk protein will supply the minimum daily amounts of indispensable amino acids required for adult maintenance, provided the protein is completely digestible and the amino acids wholly available.

A rough check on the above calculations may be obtained from the studies of Bricker *et al.* (23). They found in nitrogen balance experiments with nine young women that 22.4 gm. protein were required per day for nitrogen equilibrium when cow's milk was the source of protein.

It may be well to point out here that the indispensable amino acids appear to comprise the much smaller portion of the total nitrogen of most proteins found in food. Consequently, when proteins are used to supply the indispensable amino acids, an adequate supply of nitrogen is always assured for synthesis of the dispensable amino acids. As stated in a recent report (24), "When protein is derived from natural foods, if the essential amino acid requirements are covered, the total nitrogen supply will also be adequate. 'Look after the essentials and the total will look after itself.' Therefore, if the need for each essential is known, the requirement in terms of any protein can be calculated from its amino acid composition."

Special Functions of Amino Acids

In addition to the more obvious dietary requirements of the indispensable amino acids for growth, repair, reproduction, and lactation where protein synthesis is marked, special functions of certain amino acids emphasize their significance as essential nutrients. A partial list includes:

AMINO ACID	NEEDED FOR BIOSYNTHESIS OF
Tryptophan	niacin
	serotonin
	histamine
Histidine	choline
Methionine	creatine
	epinephrine
Phenylalanine	thyroxine
	epinephrine

It has been known for some time that tryptophan was effective in curing pellagra. However, only recently an acceptable quantitative relationship for the conversion of tryptophan to niacin has been established. It is recommended that 60 mg. dietary tryptophan is equivalent to 1 mg. niacin (25) and that instead of speaking of niacin requirements *per se*, one considers requirements in terms of "niacin-equivalents." Thus, if a day's supply of food furnished 600 mg. tryptophan from protein and contained 7 mg. niacin as such, it would be evaluated to contain 10 niacin-equivalents from tryptophan and to have a total of 17 mg. niacin-equivalents—the recommended daily allotment of niacin for an adult woman.

Besides serving as a precursor for niacin, tryptophan also functions as the precursor for the vasoconstrictor substance, serotonin (5-hydroxytryptamine). Recently, evidence has accumulated (26) to suggest that serotonin plays an important role in brain metabolism.

Histidine, on decarboxylation, gives rise to histamine, a powerful vasodilator and a stimulator of gastric secretion in higher animals. The amino acid, methionine, serves as an essential supply of methyl groups for numerous methylated compounds of physiologic significance. Among the most important are:

(a) Choline, an essential component of tissue phospholipides, and a chemical transmitter of nerve stimuli in the form of acetylcholine

(b) Creatine, which in the form of creatine phosphate plays an essential role for the storage of energy in muscle tissue

(c) Epinephrine (or adrenalin), the hormone of the adrenal medulla

The amino acids, phenylalanine and tyrosine, are the obligatory precursors of the hormones of the thyroid gland and the medullary portion of the adrenals. The latter hormonal secretion, epinephrine, thus, requires two of the indispensable amino acids for its biosynthesis.

To date, no specific function other than for the synthesis of protein has been noted for the remaining indispensable amino acids, isoleucine, leucine, lysine, threonine, and valine. However, in this capacity they are directly concerned in the biosynthesis of the many protein hormones, such as those from the pituitary, pancreas, and parathyroids.

Vitamins and Amino Acid Metabolism

Listed below are the vitamins, together with an indication of the locus of action with respect to their biologic role in amino acid metabolism.

VITAMIN	LOCI OF ACTION
Riboflavin	amino acid oxidation
Ascorbic acid	aromatic amino acid metabolism
Biotin	biocytin (lysine)
Pantothenic acid	coenzyme A (sulphur-containing amino acid)
Folic acid	glycine and serine metabolism
Vitamin B_{12}	protein synthesis

Riboflavin is a constituent of certain enzymes which catalyze the oxidation of amino acids. Ascorbic acid appears to function in the normal metabolism of tyrosine because intermediate metabolites of this amino acid may be excreted in the urine in scurvy. Most of the biotin in tissues is in a combined form, a major part of which may be biocytin, a compound of biotin and lysine. Pantothenic acid functions as coenzyme A. Methionine is important in supplying the sulphur for the utilization of pantothenate in the biosynthesis of coenzyme A. It has been demonstrated experimentally that sulphur-amino acid deficiency results in a decrease of hepatic coenzyme A levels in the presence of adequate amounts of dietary pantothenate (27). Folic acid substances are required for the interconversion of the amino acids, glycine and serine. Vitamin B_{12} has been implicated in the biosynthesis of proteins. Whether this action is indirect by virtue of its role in nucleic acid metabolism or specific is of little consequence, inasmuch as it would influence the utilization of amino acids in either case.

Some examples of the role that vitamin B_6 plays in amino acid metabolism are listed below:

Transamination reactions
Decarboxylation of amino acids to produce amines
Biosynthesis of cystine from methionine
Biosynthesis of niacin and serotonin from tryptophan

None of the other vitamins appears to exert a more important function in this regard. High intakes of protein increase the dietary requirements for vitamin B_6, and a deficiency of this vitamin can be produced readily by feeding a diet high in protein and low or lacking in B_6. In addition to the general role of the vitamin as an essential component, in the form of pyridoxal phosphate, of transaminase and amino acid decarboxylase enzymes, it is essential for the conversion of methionine to cystine. Likewise, it is essential for the transformation of tryptophan to niacin. Recently (26) the specific role of this vitamin has been demonstrated in the formation of serotonin. Furthermore, it was demonstrated that in vitamin B_6 deficiency tissue levels of serotonin were reduced to approximately 25 per cent of normal levels. These low tissue levels of serotonin in pyridoxine deficiency are of interest in view of the neurologic signs which accompany vitamin B_6 deficiency in animals.

Finally, from the examples cited, it is obvious that the indispensable amino acids are intimately interrelated to many of the vitamins and hormones in their utilization and metabolism. It is probably obvious, with the many such metabolic interrelationships already established, as well as those yet to be determined, that in dealing with amino acid requirements, a dietary pattern simulating physiologic needs is likely to prove to be most beneficial. Experimental demonstration is already at hand (28) with respect to the abnormalities that may arise as a consequence of certain amino acid imbalances. The practical dietary significance of the latter observations are still obscure.

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Are Short-Cuts in Nursing Education an Advantage to the Dietitian?

Although advancements have been achieved, it is disturbing to find short-cuts being taken in the name of progress. It is not progress if there is scant supervision during the diet therapy clinical experience of student nurses; if nurses are not being impressed by wastage of food, time, and labor due to poor communication and cooperation between the dietary and nursing departments; if the course content is not integrated with other courses, thus causing students to lose continuity of thought in their nutrition lectures; and if we are to spend hours in nutrition lecture and never give the student an opportunity to translate this theory into practical terms.

What are dietitians doing to correct existing deficiencies in such practices? Are they making their observations known to nursing educators?

Perhaps apathy stems from a failure to recognize the effectiveness of the nurse in feeding the sick. The most accurately prescribed and efficiently translated diet is of no avail, if the patient does not eat the food. Yet, within the medical team, it is the nurse who has closest contact with the patient. She—more than anyone else—knows his food habits, his needs, and his tolerance from day to day. Perhaps the patient's food consumption is more dependent on her than on any other member of the team. The dietitian has much to learn from the nurse's observations.

If the nurse recognizes the contribution of hospital food service to the physical and psychological welfare of the patient and if fully aware of her role in his nutritional well-being, the dietitian can provide more satisfying and adequate meals, bringing better service to the doctor, the patient, and the hospital.—*From a talk by Marion Maltese, Teaching Dietitian, St. Joseph's Hospital, Paterson, New Jersey, before the New Jersey Dietetic Association on May 14, 1959, in Atlantic City.*

Fat in the Diets of Older Women[1]

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THE QUANTITY and nature of dietary fat has become a subject of wide interest, due to the association of diets rich in fat with obesity and atherosclerosis.

Reports of studies suggesting a relationship between high-fat intake and atherosclerosis in some instances may have led to a minimizing of the nutritional value of fats. That food fats play an important role in nutrition is well established (1-4). From a nutritional standpoint, fats have specific functions not shared by other foodstuffs, and in the light of present knowledge cannot be considered optional components of the diet.

The human requirement for fat or specific fatty acids remains to be determined. According to the Food and Nutrition Board, "it has been the consensus among nutritionists that the human diet should provide at least 25 per cent of its energy in the form of fat" (2). Clear-cut evidence for this, however, is lacking. A diet with a fat content that supplies less than 25 per cent of the total energy is not easily selected from the food supply ordinarily available in the United States, and such a diet probably would not be acceptable to the general population. Nor are there proven nutritional or health advantages in diets with a higher fat content.

The share of total calories supplied by fat in the national diet considerably exceeds 25 per cent and has increased in recent years. In the spring of 1955, fats brought into the family kitchen represented 42 to 45 per cent of the total energy value of the diets (5). These figures do not, however, give a true picture of the amount of fat ingested, since kitchen or table waste was not deducted.

There is a need for further study of levels of fat consumption as obtained from individual dietary records. A consideration of the sources of dietary fat would also seem to be of value in light of differences observed in the physiologic behavior of different fats.

Sources of Data

This study presents an evaluation of the fat content of seven-day weighed diets reported by 349 women thirty to ninety-seven years of age. The data were calculated from dietary records furnished by six North Central states—Iowa, Michigan, Minnesota, Missouri, South Dakota, and Wisconsin.[3] South Dakota records were further studied for the food sources of the fat. The available data did not lend themselves to an evaluation of the fatty acid content of the diets. Data from Minnesota and South Dakota were also examined to determine if any relationships could be discovered among blood pressure levels, age, body weight, and fat content of the diets.

The Findings

The grams of fat and share of total calories supplied by fat in the diets of the women are shown in Table 1. The mean fat content of the diets and the percentage of total energy derived from fat for the six states were lower than the figures based on the 1955 Department of Agriculture household food survey of the North Central States, for which the "recall-list method" was used. This might be expected, since figures based on individual records of weighed food intakes in all probability more nearly approximate consumption.

Iowa women reported higher fat intakes (a mean of 84 gm. daily) than women of the other five states, and fat furnished a higher percentage of total cal-

[1]Contribution No. 24, Subproject 1 of the North Central Cooperative Project NC-5, Nutritional Status and Dietary Needs of Population Groups. Approved for publication by the Director, South Dakota Agricultural Experiment Station, Brookings, as Journal Series No. 415; and as paper No. 4053, Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul.

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[3]Regional Project NC-5.

TABLE 1 **Mean fat content of diets of 349 women in six North Central states***

STATE	AGE RANGE	NUMBER OF SUBJECTS	TOTAL CALORIES	FAT		
				Weight	Calories	Share of total calories
	yr.			*gm.*		*%*
Iowa	32—85	96	1792	82	738	41
Michigan	48—78	18	1711	71	639	37
Minnesota	30—97	120	1729	75	675	39
Missouri	34—79	25	1602	63	567	35
South Dakota	30—85	78	1690	71	639	38
Wisconsin	31—64	12†	1764	71	639	36
All states . . .	30—97	349	1715	72	649	38

*Based on data on seven-day weighed diets (6).
†No subjects in decade 50 to 60 years.

TABLE 2 **Mean diastolic blood pressure, body weight, and fat content of diets of 180 Minnesota and South Dakota women**

AGE GROUP	NUMBER OF SUBJECTS	DIASTOLIC BLOOD PRESSURE	BODY WEIGHT	FAT INTAKE	
				Weight	Share of total calories
All Subjects					
		mm.	*lb.*	*gm.*	*%*
30 to 39 yr.	30	77	125	86	41
40 to 49 yr.	30	78	135	89	42
50 to 59 yr.	34	84	158	70	37
60 to 69 yr.	30	86	149	74	39
70 to 79 yr.	29	86	131	61	35
80 yr. and over	27	88	123	61	38
All ages . . .	180	83	138	74	38
Diastolic Blood Pressure below 90 Mm. Mercury					
30 to 39 yr.	27	75	124	86	41
40 to 49 yr.	25	75	126	91	42
50 to 59 yr.	25	79	154	72	37
60 to 69 yr.	15	78	144	77	40
70 to 79 yr.	19	76	128	62	35
80 yr. and over	17	80	122	60	38
All ages . . .	128	76	134	76	39
Diastolic Blood Pressure 90 to 100 Mm. Mercury					
30 to 39 yr.	3	94	137	83	42
40 to 49 yr.	4	91	163	93	42
50 to 59 yr.	5	94	165	69	35
60 to 69 yr.	12	93	155	73	38
70 to 79 yr.	5	96	134	56	32
80 yr. and over	5	96	114	59	40
All ages . . .	34	94	147	71	38
Diastolic Blood Pressure above 100 Mm. Mercury					
30 to 39 yr.	0	—	—	—	—
40 to 49 yr.	1	104	168	42	43
50 to 59 yr.	4	106	181	61	37
60 to 69 yr.	3	121	149	70	37
70 to 79 yr.	5	114	137	58	36
80 yr. and over	5	110	141	69	37
All ages . . .	18	112	153	63	37

ories. A similar fat level based on evaluation of seven-day weighed diets has been reported by Swanson *et al.* (7) for fifty-four Iowa women of like age range. The share of total calories derived from fat by Iowa and Minnesota women—41 per cent and 39 per cent, respectively—agrees with the percentages for these states found in a recent study of diets in which the 24-hr. recall method was used (8). In the latter study, values for Michigan and South Dakota were somewhat higher than in the study of women in these states on the seven-day weighed diets.

The distribution of fat among food groups in the seven-day diets of the sixty South Dakota women, in terms of percentages of total fat, was: meats and gravies, 24.9 ± 8.0; dairy products other than butter, 21.3 ± 9.6; butter and other fats, 19.8 ± 9.9; cakes, pies, and puddings, 12.7 ± 6.0; miscellaneous items, 10 ± 5.8; cereal products, 6.3 ± 2.8; and eggs, 5.0 ± 3.4. Sixty-six per cent of the total fat of these diets was derived from the first three food groups. Animal sources, meats, dairy products, and eggs provided over 50 per cent of the fat.

In the 1955 household food survey (5), meat, poultry, and fish supplied 27 per cent of the total dietary fat; milk and milk products other than butter, baked goods, and nuts, 33 per cent. The remaining 40 per cent was furnished by visible fats and oils, including bacon and salt pork.

BLOOD PRESSURES

Table 2 gives mean diastolic blood pressure, body weight, and fat content of the diets for three groups classified by age decades and blood pressure levels. The number of subjects with diastolic blood pressures below 90 mm. mercury declined after the fifty- to fifty-nine year decade and the number with pressures 90 to 100 mm. and above increased in the next decade, with a decline thereafter. Pressures above 100 mm. were not encountered in the youngest age group. Of interest in this connection is the study of Swanson *et al.* (7). They found a significant relationship between the concentration of serum cholesterol and the age of their subjects. The mean serum cholesterol level was lowest in the thirty-year decade and highest in the sixties. Mean diastolic blood pressure levels observed for Iowa and Nebraska women thirty to ninety years old were similar to those reported here.

BODY WEIGHTS

Mean body weights were lowest in each age decade for subjects with diastolic pressures below 90 mm., with the exception of those eighty years old and older, and highest for subjects with pressures above 100 mm., except for the sixty- to sixty-nine-year decade. All age groups considered together showed a successive rise in body weight from the lowest to the highest blood pressure classification. No apparent relationship existed between the diastolic blood pressure and the current dietary fat intake. The latter frequently decreased in later decades where the largest number of high diastolic pressures occurred. The extent to which earlier high fat intakes over a period of years might have exerted an influence is a matter for conjecture. It would seem unlikely that fat intakes within the range reported could be expected to contribute to the pathology involved in subjects with elevated diastolic blood pressures.

High diastolic pressures were frequently accompanied by systolic pressures above levels considered to be within the normal range. A number of high systolic pressures were encountered in subjects with diastolic pressures between 90 and 100 mm. or even below 90 mm.

Summary

The mean daily fat content of diets reported for women thirty to ninety-seven years of age in six North Central states ranged for the different states from 63 to 82 gm. Fat calories represented 35 to 41 per cent of the total. Butter and other fats, dairy products (other than butter), and meats and gravies contributed 66 per cent of the fat of the seven-day diets of sixty South Dakota women.

Observations on the diastolic blood pressure of 180 of the subjects showed that 128 had pressures below 90 mm. mercury, 34 had pressures between 90 mm. and 100 mm., and 18 had pressures over 100 mm. An increasing number of subjects were in the higher blood pressure levels beginning with the forty to forty-nine-year decade. The mean weights were higher for subjects of all ages with diastolic blood pressures above 100 mm. than for those with pressures below 90 mm. There was no apparent relationship between diastolic blood pressure and fat content of the diets.

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Intestinal Function of Vitamin A

Vitamin A may be important to the mucus lining of the intestines, without which digestion cannot be completed. In a report before the 134th national meeting of the American Chemical Society last fall, P. T. Varandani, a Fulbright scholar from Agra, India, at the University of Illinois, said:

"Though vitamin A was one of the earliest vitamins discovered, very little is known about its biochemical function other than in the field of vision. However, in addition to night blindness, symptoms of vitamin A deficiency include cessaton of growth and spots on the mucus lining of the intestine. This is a clue to the fact that vitamin A is bound to have some important and significant function other than its role in vision."

In his research, Mr. Varandani used the intestines of rats. Incubation of mucus showed that vitamin A-deficient animals produced only half as much mucopolysaccharide as animals with a normal diet, and that the addition of vitamin A to the incubated material restored it to normal. He commented: "It demonstrates for the first time a direct, presumably co-enzymatic, function for vitamin A. This means that the presences of vitamin A may be necessary to the action of the enzyme that controls the speed of mucopolysaccharide formation.

"The enzymatic steps involved in building up the mucopolysaccharide molecules are many, complex, and as yet unexplored, but it has become probable from the steps described that one of them requires vitamin A as a co-enzyme."

Psychologic Factors of Importance

Group Feeding for the Elderly[1]

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The viewpoint expressed by these authors should lead the dietitian and nutritionist to a greater tolerance for and understanding of disturbances about the food services.

OUR PURPOSES in this presentation are: (a) to evaluate methods of study applicable to the individual in the group feeding situation; (b) to review the effects of emotional disturbances on feeding behavior; and (c) to outline methods of study of prediction and management that can aid the professional person in charge of feeding to appreciate individual variations and problems. The clinical experience on which this presentation is based is derived from a number of years of intensive cooperation between the psychiatric and dietary departments at the Home for Aged and Infirm Hebrews of New York. The lessons learned in this specialized setting may be applied, however, to feeding situations at all age levels. This conclusion will be reinforced later as we develop the continuity throughout life of motives, feelings, and adaptive techniques.

Problems in Group Feeding

Basic menu planning must be attuned as nearly as possible to the needs of the group to be fed. Foods should be introduced on the basis of cultural patterns. Within administrative limits, the individual should be permitted some choice in the selection of food, or some voice in the planning of menus. Lack of such a choice has long been a fundamental weakness in institutional food service. The introduction of the selective menu has overcome this in large measure. Where use of a selective menu is not practicable, simple choices, such as choice of bread, beverage, or an alternate entrée, will help to satisfy the individual's desire for a voice in selecting his own food. Wherever possible, suggestions for foods to be included in the menu should be accepted from those for whom the menus are planned (1).

The type of food service must be determined by the physical capacity of the individuals involved. Where tray service at the bedside is indicated, it is well to introduce some companionship, if possible, to make the meal hour more relaxed and enjoyable. This factor may be relatively unimportant during a short hospital stay, but it is an important consideration with chronically ill patients. Where possible, it is desirable for people to sit together at tables. Individual plate service or family style may be used. Our experience has led us to believe that a group of four at each table is the most desirable.

It is important that the grouping be made on the basis of congeniality, so that the meal hour will remain pleasant. At the Home, we try to avoid any practice that may tend to segregate one group from another. We find, however, that where there are language barriers or significant social differences, people are much happier sitting with others who speak the same language or enjoy the same intellectual or social level. We have also found it better to separate those on modified diets from those receiving the house diet. This enables us to do a better job on the modified diet. It also diminishes any jealousy which may exist among those who do not receive special foods.

Surroundings in the dining hall should be pleasant and an atmosphere of tranquility should prevail. Disturbances during meals interfere both with appetite and with digestion. If residents are physically able to carry trays, cafeteria-type service may be indicated. In a cafeteria arrangement, it is possible to offer a wider variety of food with fewer administrative problems. In a pilot study at the Stockton State Hospital in California, it was shown that dining rooms having cafeteria service had consist-

[1]Presented in preliminary form at the 9th Community Nutrition Institute, Syracuse University, Syracuse, New York, in June 1955.

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ently less wastage than those having family-style table service (2).

These problems are basic to most feeding situations. For the most part they can be met and solved satisfactorily by the qualified dietitian. However, the problems of people's reactions to food are so complex that we are frequently troubled by them. Selling and Ferraro have pointed out (3) that "people behave differently when eating by themselves or with their families, and when they are eating with large groups. Some will react belligerently in order to gain attention, others tend to withdraw and comply with the customs." The dietitian needs a more profound knowledge of the individual's reaction to the feeding situation, with special reference to the psychologic factors involved in eating. In our institution we have tried to achieve this through a program of collaborative training within the dietary and psychiatric departments. We have sought to approach evaluation of behavior through modern dynamic psychiatry.

Tools for Assessing Behavior

The basic approach employed in our evaluation has been based on a dynamic viewpoint. Human behavior is understood as having meaning in terms of motives, as a form of striving toward goals. This may be formulated as a psychology of goals and means of attaining them.

The goal of human behavior may be defined as adaptation, as is true of all living things. Goals may be positive, and may determine behavior in terms of a search for gratification, for well-being, for the fulfillment of basic needs. Or, they may be negative and determine behavior in terms of avoidance of damage, or of the threat of damage. Means by which these goals are achieved constitute the adaptive techniques or maneuvers. Modern psychiatry has also emphasized the importance of the basic emotions (fear, rage, love, pride) as determinants of behavior.

The third concept basic to our understanding is the developmental viewpoint. The individual's personality as manifested in his goals, adaptive techniques, and the regulation of his emotional life is, to a remarkable degree, the product of his life experience. Emphasis has been placed on the extreme importance of early life experiences—those of infancy and the nursery years—as determinants in the development of personality. This point deserves further elaboration. In infancy, survival depends on a close contact with another person who provides care in the form of feeding, shelter, and protection. The emphasis in this relationship is on the helplessness of the individual and on the need for this pattern of relationship to insure survival. This relationship is termed one of dependency. With the development of motor capacities in later infancy and early childhood, the individual develops motives to achieve independence, control, and mastery of the environment. He develops a will of his own. The relationship to the parent, previously entirely protective in nature, now assumes dimensions involving a struggle and a contest of wills. The contrasts between the early theme of adaptation, revolving about helplessness and dependence, and the later theme revolving about independence, mastery, and control is of fundamental significance. It will recur in all our formulations.

With these considerations in mind, we can proceed to a study of the feeding situation in early life. Modern psychiatric research has pointed to the significance of the feeding relationship in early life as one of the basic determinants of personality patterns. The feeding relationship represents the first sustained human contact of the infant. The warmth, the closeness, the emotional interchange, and the pleasure of satiation may, in a broad sense, be considered aspects of the first love relationship of the child. In feeding, the child attains the first awareness of self and of the immediate environment. The experiences of feeding form backgrounds for later experiences of pleasure and self-esteem. The love relationship between parent and child, which is based on care and protection, is symbolized by the feeding relationship. In later childhood, as we have noted, the themes in the parent-child relationship revolve about the child's search for independence and mastery. The feeding relationship then acquires such connotations and a struggle for power, a balance between compliance and defiance, occurs at mealtime.

In the elderly, the bases of irrational behavior are often best understood in terms of a complex interaction between the effects of life experiences, the inevitable physical, social, and emotional changes that develop in senescence, and temperamental factors. As an aid to the evaluation of personality in the aged, we have contrasted two groups of people: (a) those of broad body build, of "active" temperament, who tend to relate well to the environment and, on the whole, to eat well, and (b) those of slender body build, sensitive in their make-up, who withdraw easily from their environment and, on the whole, eat poorly. The relationship to food parallels the general relationship to objects in the environment.

Nutritional Practice in a Home for the Aged

Our program at the Home focuses, of course, on the application of sound nutritional principles (4). It is assumed that high standards of food preparation and service will be maintained and that all sanitary safeguards will be employed. A menu pattern has been established based on recommendations of the

Food and Nutrition Board of the National Research Council (5). Periodic dietary analyses are made to assure maintenance of nutritional standards. As an added safeguard, all white bread served is baked according to the Cornell formula developed by McCay and his associates. McCay has stated that this bread with 10 per cent added butter or margarine will maintain adequate nutrition.

A comprehensive consideration of nutritional practice in any institution must embody not only the usual materials of the nutritionist, but also an evaluation of the relationship of the nutritionist to the client in the terms that we have described.

Educational Program for Nutritionists

Within the last four years, an educational program for nutritionists was undertaken with the following objectives:

(a) To test the practicability of conveying within a limited time a basic understanding of feeding behavior in dynamic terms.

(b) To note the effect on nutritional practice of an improved understanding of psychologic factors in nutrition.

Four sessions were held at monthly intervals in which psychologic principles involved in feeding behavior were discussed and their application to specific cases outlined. After six months and after three years, follow-up meetings were held to evaluate the impact of this experience on the daily practice of the nutrition department.

This brief educational experience proved of value both to the psychiatric department and the nutrition staff. It showed that complex psychologic relationships could be approximated in rather simple descriptions, that firmer understanding of behavior and its significance added to self-assurance and diminished anxiety of the staff. Experiences with problem eaters convinced the staff that alterations in behavior could be elicited by definite techniques based on an understanding of the patient's psychodynamic situation.

Nutritionist-Client Relationship

The practices of the nutrition department can now be reviewed from the dynamic viewpoint we have outlined. The relationship of the nutritionist to the client, when examined in terms of its irrational connotations, indicates that there have been reactivated many facets of the original parent-child relationship. The focal point is the feeding relationship. Many of the irrational behavior patterns the nutritionist sees acquire meaning in terms of a reaction in which the nutritionist is treated as if she were a parent substitute. The search for meaning in the nutritionist-client relationship in these terms has enabled members of the nutrition staff to evaluate more effectively practices that had been followed intuitively and to achieve a greater tolerance for disordered behavior in residents.

Talking, as an "oral relationship," can be related psychologically to the early feeding situation. The resident who seeks to exchange a few words with the nutritionist often seeks to obtain something from her akin to feeding. Even if the talking seems irrelevant or it interrupts the routine, the nutritionist may be giving as much as if she were offering an attractive meal. Residents have been encouraged to feel free to discuss their reactions to food and other concerns in an atmosphere both sympathetic and non-critical. At times, a moment or two of added attention will give the resident a feeling that he is being cared for in a "personal" way, rather than in the impersonal context of institutional practice.

In psychologic terms, what are the backgrounds of some of the eating disturbances that we see? Our formulations, although directed primarily to the task of understanding feeding difficulties in the elderly, apply to patients of all ages. Whenever we study mal-adaptive responses, or the non-rational facets of human behavior, it is essentially the psychology of the child that we seek to understand.

Psychologic Aspects of Eating Problems

A common problem in the group feeding situation is that of anorexia, or loss of appetite. In terms of emotions, anxiety and depression are of great importance as determinants of appetite. Modern psychoanalytic studies of depression have focused on the connotations involved in this emotional state in terms of the feeding situation. The depressed person sees himself as one who has met with the ultimate threat of early life, the threat of starvation. Loss of appetite as a technique of negativism or of protest is familiar at all age levels. In childhood, it is one of the last refuges that a child has in his struggle for power with the parents. In the elderly, rage and disappointment, from whatever source, are often reflected in food refusal. The isolation and withdrawal experienced by many individuals in old age is often associated with a considerable reduction of food intake. There are involved in this process of isolation not only factors of social and physical changes, but also of temperament.

It has been stressed that, in the aged, disturbances in appetite are sensitive indicators of anxiety. The first clinical evidence of an emotional disturbance in a resident is often elicited in the context of the feeding situation. Maladjustments stemming from other areas may be reflected in disturbed behavior in the dining room. The search for an understanding of feeding difficulties must, therefore, extend beyond the confines of the feeding relationship. A number of residents at the Home who could not adapt to the dietary situation, and who accordingly left, were

found to be exceptionally rigid personalities and to have generalized disturbances in their life adaptation (6).

Another area of considerable psycholgic interest is the study of food prejudices and aversions. Aversions often result from unpleasant associations to early illness, discipline, or religious and cultural taboos. The role of food allergy in the development of aversions is not clear. Experience with the elderly indicates that some restrictions of specific foods are unwarranted. Under certain conditions, the elderly will accept fat meat, fried foods, and "gas-producing" food without undue distress. Food prejudices are often best understood in terms of the psychology of ritual. Ritual is an adaptive technique designed to avoid anxiety. Its utilization is most marked in individuals who appear to have many "obsessional" characteristics. These people are fussy, perfectionistic, concerned to an inordinate degree with doing the right thing. A closer study of these people from a dynamic viewpoint indicates that a struggle is going on in them between defiance and compliance to authority figures, stemming from the early parent-child relationship. They achieve security through the maintenance of rigidly held attitudes and rituals. Many peculiarities of taste and specific avoidances may be seen as the incorporation of reactions to certain feeding experiences into ritualistic systems.

The point has been made that food prejudices often serve as protective devices against anxiety. In the elderly, the attempt to wean the individual from food prejudices must be done cautiously, in view of his diminished capacities for protection against anxiety. The atmosphere of permissiveness, of freedom of choice can carry the connotation of being cared for without the accompanying demand for compliance which goes with parental love in early years. Unpleasant emotional reactions, stemming from the combined eating and disciplinary situations in early life, can be tinged with more pleasure in the light of assurance of love without undue demand for obedience. As anxiety diminishes, favorable alteration in food tolerance may be noted.

The nutrition department has been increasingly concerned with the problem of meeting individual dietary requests. About 55 per cent of the residents are receiving some sort of individual dietary consideration. Actually, only about 10 per cent of these may be considered truly therapeutic diets. The rest may be termed self-selected. Modified diets may be utilized by a resident as a way to obtain special privileges, or, conversely, a method of self-imposed curtailment of food based on self-denial and adherence to ritual. When some residents see others receiving specialized attention, a pattern of "sibling jealousy" may develop and special demands are made, on the medical and nutritional departments, based on ailments both real and fancied.

We have often wondered how far we should go in catering to what we consider individual whims and fancies. Now that we are more aware of the emotional significance of food, we view these demands not so much as whims or fancies but rather as needs, growing out of attempts to deal with anxiety. We feel we should continue, and, if possible, expand our policy of individual dietary considerations. However, limits exist to the service that can be offered. It is here that the nutritionists' own anxieties enter the picture and affect their patience with the residents.

When the nutritionists' best efforts to provide a good meal meet with complaints, there are unquestionably considerable personal frustrations. A keener appreciation of the ways in which persons may use the food situation as an emotional outlet has helped our nutritionists to become more objective in handling such situations. After assuring themselves that a meal is properly planned, prepared, and served, they can tolerate complaints with less anxiety. At the same time, their professional pride is not hurt by these complaints. It is understood that the causes may be remote from the immediate situation. Whereas it may have been their previous belief that it was "professional" to suppress their own feelings in relationship to clients, they now feel it more acceptable to admit to and recognize some degree of emotional involvement. They are able to admit to themselves that they may become annoyed or anxious in certain dealings with residents. With this recognition and acceptance of feelings, a better control of emotional reactions may be achieved.

In terms of the relationship of the nutritionist and client, an interesting fluctuation in adjusting to food has been noted. On admission to the Home, the residents, who may previously have been on a restricted diet due to social, economic, and emotional difficulties, feel grateful for the salvation the Home seems to offer and are willing to make all sorts of adjustments and compromises. They find the food satisfactory. Then, after a certain period, they begin to complain and to find difficulty with the food situation, which had previously been acceptable. This offers a suggestive parallel to the fluctuation in the psychotherapeutic relationship of doctor and patient. At the outset of such a relationship, the patient is often buoyed up by his expectations of magical help and may show a rapid clinical response. Later, with the mobilization of negative feelings and resistance in therapy, progress is impaired.

Some knowledge of the background and special problems presented by each resident has been of considerable help in handling problems in the dining room. Through the cooperation of the social service department, information is collected from new residents which might be helpful, including: language spoken, history of previous dietary prob-

lems, and special problems of personal hygiene or of physical infirmity which might require special management in the dining room.

In the management of the problem cases, our approach must consider two patterns of reaction to frustration. First, there is the patient whose special needs we meet successfully. We feel that a feeding disturbance represents the elaboration of certain unpleasant emotions, frustrations, and dissatisfactions based on unmet needs. When these needs are met, clinical improvement is noted. There is another type of patient with whom this procedure does not work. That patient's needs appear to be a bottomless pit, and the simple act of meeting the individual need does not suffice. The theoretical basis of this is understandable in the light of current psychiatric theory, in terms of what may be called "pain dependence," i.e., the pursuit of pleasure through achieving pain. An individual with motivations of this type seeks, paradoxically enough, to provoke punishment or to undergo another type of unpleasant experience as a means of meeting his need, which is ultimately related to a search for freedom from anxiety.

Other Problems Needing Study

Many questions have been raised in this process of exploration. Further study, collaborative research, and discussion involving the following problems are tasks for the future:

(a) How can any educational program be expanded to include all personnel who come into contact with residents in the dining hall?

(b) How can one handle the demanding patient, who requires that he be served first and will refuse to eat otherwise?

(c) How can one keep a dissatisfied grumbling patient from influencing others who go through a cafeteria line?

(d) How far can or should one go in making substitutions for complaining patients rather than trying to educate them to accept the food on the regular menu? Should substitution be encouraged? Some of the problems encountered in the handling of "special diets" have been indicated in motivational terms.

(e) How can one deal with iatrogenic factors in the perpetuation of dietary restrictions? Physicians are at times persuaded to prescribe a restriction of diet which is then utilized by the patient for his own psychologic needs. Physicians and nurses may convey certain negative attitudes toward food which affect their own likes and dislikes.

We feel that it is possible to formulate an approach to these problems, as to other problems, in terms of the dynamic concepts discussed above. The obligation for further work in this field is evident, since these problems often involve a considerable impairment of efficiency in nutritional service.

Summary

Dietary habits and adjustment at all ages are markedly influenced by the psychologic significance, largely unconscious, of the act of feeding and the relationships involved in the feeding situation. Food intake as a form of object relationship is related to certain personality constellations. Food prejudices are related to faulty habits, anxieties, and specific symbolic meanings of certain foods dating from the early development of the individual. The act of feeding has specific symbolic implications in terms of the original parent-child relationships. In discussion of the contact between nutritionist and client, the emphasis has been placed on these unconscious reverberations that are obscured by the formal aspects of the feeding situation.

The practical application of these principles has been found successful in the experience of the nutritionists and psychiatrists at the Home for Aged and Infirm Hebrews. The application of psychologic principles to the work of the nutritionist broadens her opportunity as well as her responsibility to include within the scope of her work consideration of the client as well as of the food to be offered.

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Lists of Legal Food Additives Available

Two lists of food chemicals, generally regarded as safe for their intended use, have been proposed by the Food and Drug Administration and published in the *Federal Register*. On December 9, 1958, 188 such chemicals were listed, and on April 21, 1959 a further list of 182 substances was published. Included are preservatives, buffers and neutralizers, nutrients, non-nutritive sweeteners, coloring agents, stabilizers, emulsifiers, spices and natural seasonings and flavorings, essential oils, natural extractives, and other additives.

Dietary Service in Progressive Patient Care

Traditionally, patients entering a general hospital are assigned to the unit befitting their sex, diagnosis, and economic status. Today, hospitals are interested in developing new patterns of organization which will improve services to the people in their communities. "Progressive patient care" is one such concept which shows promise and has aroused widespread interest. This concept envisions the general hospital of the future as a community health center—the focus of both out-patient and in-patient care, as much concerned with the care of the long-term patient (including the mentally ill and tuberculous) as it is now for the care of the short-term patient.

Its central theme is that patients are grouped according to their degree of illness and need for care, and the staff serving each group is selected and trained to provide the services needed by that group. There are five elements involved. Four are contained within the general hospital, the fifth being an extension of services into the community. These elements are: intensive care, intermediate care, self-care, long-term care, and home care.

In the intensive care unit, the critically and seriously ill are concentrated, regardless of diagnosis. This unit is staffed with sufficient personnel—professional nurses, practical nurses, nursing aides, and others—to take care of the needs. One professional and one practical nurse or nursing aide per unit per shift for five or six patients would probably be the usual staff. Thus, special duty nurses should not be required. Also, since the intensive care unit will take a large amount of the load in nursing hours from the intermediate care unit, the latter will need relatively less staff than the medical, surgical, or pediatric nursing unit in the usual general hospital.

Patients who do not qualify for either the intensive care or self-care units will be assigned to the intermediate care unit. It is believed that such a unit might be planned on the basis of 25 beds, possibly more.

The self-care unit will handle patients requiring, for instance, diagnostic study or frequent specialized treatments, but who are ambulatory.

The long-term care unit would provide services for patients, some of whom are now cared for in the general hospital and some in nursing homes or their own homes. They are people who require medical and related services of a nature best provided in a hospital and are expected to require these services for a prolonged period.

A home-care program operated by a hospital would round out its health services to the community by extending needed services to the patient after he returns home. All services for the patient would be arranged for and coordinated through one central administrative agency.

A new publication, *Elements of Progressive Patient Care* by the U.S. Public Health Service, reports observations at Manchester (Connecticut) Memorial Hospital where a progressive patient care program encompasses the first four of the five elements listed above, as well as experiences in other hospitals where experimentation with this new concept is under way.

Of particular interest are the sections on dietary care prepared by Anne Clare Donovan. The type of service which should be available in each case, as well as a general indication of the equipment and space needs, is presented.

The intensive care unit does not lend itself to routine dietary service because of constant needs and demands of patients. The dietitian and her department should, therefore, be available to fulfill requests at all times, and flexibility is the key word if requests are to be met promptly. Floor space for a small kitchen near the patients' rooms would be needed to meet immediate needs. A centralized tray service is recommended for routine meal service with a minimum disturbance on the floor and a maximum control of the tray.

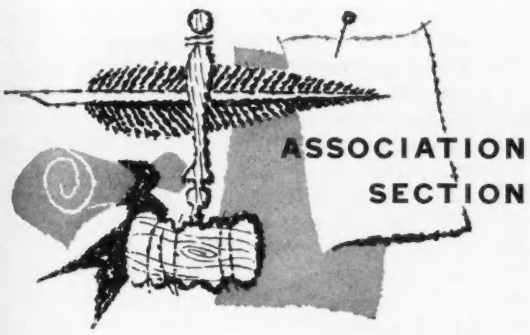
Since patients in the intermediate care unit are beginning to recuperate and regain their interest in food, the dietitian will be in a position to begin nutrition instruction. In this unit, the provision of nutritious food, appetizingly prepared and attractively served, will be of utmost importance. Floor space for a small kitchen to meet specific dietary requests should be allowed. Traditional bedside tray service will be the usual rule, although space for a separate dining area should be included for the ambulatory patient who cannot leave the unit. Centrally prepared trays would be distributed to these patients.

In the self-care unit, where patients should be permitted so far as possible to follow a home-like routine, a cafeteria could be used to provide food service as well as nutrition education. An educational program could be developed for patients requiring knowledge about modified diets, for dietary department employees who serve and check trays, and for food service supervisors who assist patients in the cafeteria line. A kitchenette-dining area is desirable for limited food service, such as between-meal snacks or night nourishments.

Food service in a long-term care unit differs substantially from that required for other elements of the progressive care hospital, being centered on group feeding rather than bedside tray service. Group food service has distinct therapeutic value in that it will serve to minimize physical weakness or insecurity and make the patient more self-reliant. Provision should be made for catering to the food preferences of individual patients. For such service, a floor dining room is needed and a small kitchen to meet the frequent requests for nourishment. Since many patients will be in wheelchairs, adjustable, pedestal-type dining tables should be provided. Also needed will be chairs for aides assigned to assist in patient feeding. Trays will be transported to the dining area in mobile carriers and served directly to patients by aides. Bedfast patients will, of course, receive beside tray service.

The home-care aspect of progressive patient care will involve the hospital's therapeutic dietitian working in conjunction with the community nutritionist in planning the patient's diet with his family.

DORIS JOHNSON, Ph.D., President of The American Dietetic Association



Doris Johnson, Ph.D., *President*
The American Dietetic Association

MOST, IF not all, Association members and numerous potential dietitians from high schools and colleges throughout the country are now familiar with the film "View from the Mountain." While serving as Treasurer of The American Dietetic Association, Dr. Doris Johnson was instrumental in initiating the conversations with representatives of the H. J. Heinz Company which led eventually to the preparation and donation of this film in 1958. It is of special interest, then, to view briefly the career of Dr. Johnson as she assumes the responsibilities as President of our Association. She would be the first to subscribe to the idea "no man walks alone," for her own career is the result, in part, of the influence of parents and teachers; she, in turn, has provided the stimulation to many young women through her warm friendship and her high professional ideals.

Doris, the eldest of three children, was born in Woodstock, Illinois. Her mother, Flora Longanecker, descended from a family in William Penn's company which first settled around Lancaster, Pennsylvania and later moved to Ohio. Before her marriage to Alfred E. Johnson, she was a primary school teacher and later a teacher of Latin. Mr. Johnson, also of Pennsylvania Dutch and English heritage, pursued a distinguished career for forty-eight years as teacher and headmaster of Todd School for Boys in Woodstock. Through the fourth grade, Doris attended this school, but, fearing that she might become too much of a tomboy, her parents thereafter sent her to public school in Woodstock. She and her brother, Wallace, graduated together from the Woodstock Community High School as the two top ranking students.

Then came the decision to enter college. Doris did not want to teach, but since she liked science, her father suggested a career in home economics. She chose the School of Home Economics at the University of Wisconsin from which she graduated in 1932 with honors. Doris was of the generation who experienced the severe depression of the thirties. Thinking she could not afford to take an internship, she decided to look for a position as a medical technologist (she had majored in bacteriology as well as in foods and nutrition). No positions were available. Through the persuasion of Abby Marlatt, then Dean of the School, she finally accepted an appointment to the internship at the Johns Hopkins Hospital, Baltimore.

Two events during the internship year made a lasting impression. Doris recounts the party which interns gave one evening for a member of the class who had completed her work. The party, however, was on the same night as a meeting of the Maryland Dietetic Association held at the Johns Hopkins Hospital which featured a physician speaker from Hopkins. Needless to say, the interns were conspicuous by their absence; the next day, Phyllis Rowe, the Internship Director, "campused" the interns for several months. Doris was so impressed by the importance Miss Rowe attached to the meeting that she has rarely missed a dietetic meeting since—either local or national! It was during this same year, 1933, that she attended her first national meeting held in New York City. Of this meeting she has remarked that it left an indelible impression and was an important factor in creating interest in organizational work.

During the depression years, even the dietitian who had completed an internship found it difficult to find a job; Miss Johnson finally accepted a position in St. Joseph's Hospital, Milwaukee, where for the first year she received only room and board for her services. After a second year at this hospital, she returned to the University of Wisconsin where she was a research assistant for two years while she earned the Master of Science degree under the tutelage of Dr. Helen T. Parsons. She participated in studies on the egg-white injury syndrome, which has become part of the story of biotin.

Having received her master's degree, Miss Johnson served as dietitian for two years at the Wisconsin State Sanatorium; one year at the Edward J. Hines Memorial Hospital, Hines, Illinois; and seven years as Ward Dietitian, Ward Supervisor, and Teaching Dietitian at Presbyterian Hospital, New York City.

The decision to pursue graduate studies leading to the doctorate was taken in 1948. Once again she elected to study at the University of Wisconsin, where she was granted a fellowship. She pursued a major in nutrition and in biochemistry. Dr. Parsons was again her mentor, and under her direction, Miss Johnson contributed to the further understanding of the roles of vitamin B_{12}, folic acid, citrovorum factor, and biotin—part of this work being published in the *Journal of Nutrition.*

Following the granting of her doctoral degree, Dr. Johnson remained at the University of Wis-

consin for one year, during which, as Assistant Professor of Foods and Nutrition, she taught courses in institution administration and nutrition. Since 1952, she has been Director of Dietetics at the Grace-New Haven Community Hospital of the Yale-New Haven Medical Center and Assistant Professor of Public Health in the Yale University School of Medicine. She reorganized the Department of Dietetics when the new hospital building was opened in 1952 and has more recently established an approved dietetic internship.

With so full a career, one wonders where additional time can be found for participation in organizational work. But as her responsibilities have grown, Dr. Johnson's contributions to our profession have also increased. In the field of diet therapy, she has twice served as Section Chairman. She was a member of the committee which developed the meal exchange lists; she directed the development of a guide for the preparation of diet manuals; she continues to serve as a member of the Nutrition Committee of the American Heart Association and is a member of a joint committee with the American Medical Association which is currently engaged in the study of the bland diet. She has served as a member and Chairman of the Journal Board. Her articles in this JOURNAL and in the *American Journal of Clinical Nutrition* include discussions of bland, low-fat, high-protein, diabetic, and sodium-restricted diets. She is also known as the author of three books: *Overweight Is Curable, Laboratory Manual in Cookery,* and *Modern Dietetics.*

Dr. Johnson has earned many scholastic honors and has held numerous committee appointments and elected offices which are a matter of record and which this sketch cannot present in full.

In the area of dietetic administration, Dr. Johnson in 1934 was among the first to initiate a selective menu. During the war years, she had first-hand experiences with the problems of bringing about efficient food service under trying scarcities of personnel. It was not uncommon to find her writing diets and food requisitions, washing dishes and setting up trays, visiting patients, and providing instruction for patient, nurse, and intern. It would not have occurred to her to slight the latter, simply because sometimes there were not the personnel to carry out the daily routines. Perhaps some of these experiences gave her the insight an administrator needs in evaluating the requirements of each position; perhaps, also, they helped her to develop her sense of understanding and respect for the dignity of each worker and the work he does. The title of one of her recent articles in *Hospitals* undoubtedly describes a basic tenet: "Staff Development Requires Hard Work." Now, as director of the dietary department in a large teaching hospital, she exemplifies the best principles of management.

Quite possibly Dr. Johnson will be longest remembered in her role as educator. She has been teaching throughout her professional life—in spite of the fact that she thought she did not want to teach! Her students—employees, nurses, dietetic majors, dietetic interns, medical students, and students of hospital administration—agree that she makes effective use of her materials, that she is conversant with the latest developments in nutrition, diet therapy, and dietary administration, and that she insists on the highest standards of performance, whether it be in the classroom or in the work situation.

She is remembered by her students not only for the excellence of her teaching but especially for her personal interest in, and warm friendship for, each student. She is quiet but generous by nature, and gives freely of her time and talents. Her door is always open, and she is quick to sense the problem of the student, whether professional or personal.

During these busy days as President-Elect and now as President, little time is left for hobbies. I suspect, however, that even after a full day at the hospital and despite the weight of her present responsibilities as helmsman of the Association, Dr. Johnson finds both recreation and reassurance from her own particular view of the mountain. Her lovely home is situated on one of the highest points in the suburban community where she lives with her mother. From her windows she can enjoy throughout the year the unobstructed beauty of the wooded hills of Connecticut. She can be found on a Saturday morning caring for her roses or working in her perennial garden, or at the flower market looking for some new plant to fill an open space.

Somehow she finds time to attend concerts and to participate in the activities of the Congregational Church of the Redeemer and the Quota Club. Ordinarily she is an avid reader, but right now she says there isn't much time for recreational reading.

Nor are there, right now, those extra hours for leisurely knitting of sweaters and mittens for the six nephews and nieces. The professional contributions of any individual represent, in a sense, the contributions of the family as well. To Dr. Johnson, few events are more enjoyable than the visits with her brother's family in Massachusetts or her sister's family in Wisconsin (Mildred, too, is a home economist with her degree from the University of Wisconsin!). But as her family shares her with us, who knows how their pride in her achievements may, in itself, direct one or another of those boys or girls in their career choices?

This brief view of a career is like the view from the mountain. Let each aspiring student note well that dietetics provides broad vistas of experience indeed, for one can, like Dr. Johnson, be management specialist, educator, therapeutic dietitian, investigator, and writer! How fortunate for the

membership of this Association that the incoming president, Dr. Doris Johnson, is uniquely and eminently qualified in *all* of these areas!—*Corinne H. Robinson, Professor and Head, Department of Food and Nutrition, College of Home Economic, Drexel Institute of Technology, Philadelphia.*

Mary Swartz Rose Fellowship

IN 1948, the Nutrition Foundation, Inc., made a grant to The American Dietetic Association, establishing the Mary Swartz Rose Fellowship which annually provides $1000 for graduate study and research in nutrition or allied fields. The Fellowship honors a pioneer in the field whose accomplishments personalize the spirit of the award.

Provisions of qualification for the Mary Swartz Rose Fellowship follow:

Applicants must: (a) be members of The American Dietetic Association; (b) have ranked in the upper quartile of their respective graduating classes and have majored as undergraduates in a field closely related to that in which the Fellowship is sought or have gained equivalent training later; and (c) show promise of making a valuable contribution to the profession.

The recipient of the Fellowship is selected by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association, a six-member board appointed by the Association's President, subject to the approval of the Executive Board. The President and President-Elect of the Association are ex-officio members of this board.

Nominations of candidates shall be accompanied by adequate evidence of their training and ability to pursue their plans in a satisfactory manner. It is expected that applicants interested in newer aspects of nutrition or allied fields shall receive consideration.

Nominations for the Fellowship and all supporting recommendations shall be in the hands of the Executive Director of the Association not later than *February 15, 1960.* Selection of the recipient and notification of the candidate chosen shall be made not later than April 1. Unsuccessful candidates shall be notified at the same time.

A.D.A. Loan Fund

TO ENCOURAGE graduate study in the field of nutrition, dietetics, and food service management, The American Dietetic Association maintains a Loan Fund for Graduate Study. Members planning to enroll in graduate schools are urged to make use of this fund. Policies concerning these loans follow:

Eligibility: Any person who has been an active member of The American Dietetic Association for at least two years and wishes to pursue graduate study leading to an advanced degree may apply for a loan. No more than three applicants from any one state or territory can be considered.

Home economics graduates about to enter approved dietetic internships are also eligible for loans, when funds in the Graduate Loan Fund exceed by a wide margin the demands of members seeking assistance for graduate study.

How and When to Apply: Applications for loans should be made on special forms available from the A. D. A. office in Chicago. Application must be accompanied by full credentials, including transcript of college credits, photographs, letter of reference, and a personal letter stating plans for graduate work, time and place contemplated, degree sought, and future plans. Applications must be endorsed by an officer or a delegate of the state dietetic association to which the member belongs, and by one other Association member familiar with the applicant's professional work.

Special regulations pertaining to dietetic interns applying for loans may be found on page 35 of the *Annual Reports and Proceedings 1951-1952, The American Dietetic Association.*

Amount of Loans, Interest, Repayment, and Security: Loans for graduate study in any amount up to $1000 may be made to qualified applicants, the total loans or installments to be adjusted according to circumstances. Loans to dietetic interns shall not exceed $500.

Interest on loans shall be charged at the rate of 2 per cent annually, beginning one year from the date of the loan. Repayment of principal should be made as soon as possible to allow other members of the Association to benefit from the loan privilege. It is expected that all loans will be repaid within three years from the date of the loan.

Security for loans may be provided by promissory notes. Loans made to dietetic interns are to be cosigned by a responsible person, or may be secured by a life insurance policy naming A.D.A. as the beneficiary. Terms of loans may not be uniform, but may vary according to the facts in particular cases.

Selection of Loan Recipients: Final selection of recipients will be made by the Awards, Scholarship, and Loan Fund Board of the Association. The names of applicants and recipients of loans may be kept confidential if so requested.

M. Faith McAuley Memorial Loan Fund

Contributions from members of the Illinois Dietetic Association totaling approximately $1200 have been turned over to The American Dietetic Association to establish the M. Faith McAuley Memorial Loan Fund to help dietitians doing graduate work in food administration.

Applications for use of the M. Faith McAuley Memorial Loan Fund may be obtained from the Executive Director, The American Dietetic Associa-

tion. Regulations governing the granting of loans from this fund are similar to those listed above for the general Loan Fund.

Other Financial Help

A number of state dietetic associations and approved dietetic internships also offer either scholarships or loans to help dietetic interns during their fifth year.

Lydia J. Roberts Essay Award

IN 1951, the Gerber Products Company made a grant to The American Dietetic Association offering a $500 annual prize for five years for the best essay on a subject in the field of the history of nutrition. This award was named for Lydia J. Roberts in honor of her outstanding contributions to the nutrition of children. In 1956, the company generously renewed its grant, so that the essay competition might continue for another five-year period. Subjects for the essays for the next two years are as follows:

1960—Changes in Beliefs and Food Practices in Pregnancy

1961—World Problems in Infant Care

Rules Governing the Award

The rules governing the Award for the second five years are as follows:

1. The Award shall be open to: any graduate student of nutrition in an accredited university; any dietetic intern in an internship approved by The American Dietetic Association; or any member of the Association. Previous winners of the Award are not eligible.
2. Essays shall be typed in triplicate, double spaced, and shall not be less than 15 or more than 20 pages in length, exclusive of appended references and appropriate illustrations.
3. Essays accompanied by separate vita of contestant shall be received by the Executive Director on or before June 1 of each year.
4. All essays shall become the property of The American Dietetic Association. Publication of the award-winning essay and any others submitted shall be at the discretion of the Association's Executive Board.
5. Essays shall be judged by a committee of three persons, to be appointed by the Executive Board of The American Dietetic Association. The names of the judges shall not be made public.
6. Essays shall be judged on the basis of original investigation and interpretation of source material; coverage of subject and final conclusion; and organization, style, and documentation.
7. The decision of the judges shall be final. No award shall be made in any year that the judges consider no essay merits an award.
8. The award shall be presented at the Annual Meeting of The American Dietetic Association or other occasion designated by the Executive Board.

Award Winners

The first recipient of the Lydia J. Roberts Essay Award was Felisa J. Bracken, who received in 1952 the $500 honorarium for her essay on "Infant Feeding in the American Colonies." This essay was published in the April 1953 issue of the JOURNAL.

Winner in 1953 of the Award was Dorothy Lefebvre Jefferson, whose essay on "Child Feeding in the United States in the Nineteenth Century" was chosen as best by the judges. This essay appeared in the April 1954 issue of the JOURNAL.

In 1954, recipient of the Award was Alice L. Wood, New York, New York. Her essay on "The History of Artificial Feeding of Infants" was published in the May 1955 issue of the JOURNAL.

Winner of the 1955 Award, for her essay on "Nineteenth Century Leaders of Infant Nutrition," was Geraldine G. Gardiner, St. Louis. This paper appeared in the April 1956 issue of the JOURNAL.

The 1956 winner was Dr. Floy Eugenia Whitehead, State University of Iowa, Iowa City, whose winning essay, "Nutrition Education Programs for Children in the U.S. Since 1900," was published in the September 1957 issue of the JOURNAL.

The 1957 recipient of the Award was Winifred M. Ayers, Chicago, for her essay on "Changing Attitudes Toward Overweight and Reducing," which appeared in the January 1958 issue of the JOURNAL.

Winner of the Award in 1958 was Suzanne Adams of Augusta, Georgia. Her winning essay on the "Development of the Use of Vegetables in Infant Feeding" was published in the July 1958 issue of the JOURNAL.

Phyllis E. Lufkin, Oakland, was named winner of the 1959 competition for her essay on "History of Dietary Use of Liver."

Mead Johnson Awards

EIGHT GRADUATE awards in dietetics were announced at the Annual Banquet of The American Dietetic Association in Milwaukee on October 11, 1956. These awards have been made possible by an annual grant from Mead Johnson & Company, Evansville, Indiana. At the time, Dr. Helen A. Hunscher, Chairman of the Association's Awards, Scholarship, and Loan Fund Board, announced that the $5000 to be granted annually would be divided into two funds, with $2000 to provide two awards of $1000 each for advanced graduate study and $3000 divided so as to make possible six awards of $500 each for dietetic internships. Policies which apply to the granting of these eight annual awards have been worked out by the Awards, Scholarship, and Loan Fund Board and follow.

Mead Johnson Awards to The American Dietetic Association for Dietetic Interns

A fifth year of education beyond a bachelor's degree is recommended in qualifying for membership in The American Dietetic Association. This imposes a financial problem for the young college graduate and his or her family which, in many instances, cannot be solved. The inevitable result is the diversion of potential dietitians to other occupations.

A grant from Mead Johnson & Company now makes it possible to offer annually six grants of $500 each to applicants selected by the Awards, Scholarship, and Loan Fund Board of the Association. To qualify for the Award the applicant must:

1. Have completed a bachelor's degree from an accredited college or university with a major in: (a) foods and nutrition, (b) institution management, or (c) equivalent educational requirements.
2. Have met the academic requirements for admission to an approved dietetic internship.
3. Show promise of being a valuable contributing member of the profession of dietetics.
4. Show evidence of financial need to attain the goal of an adequate education in dietetics.
5. Have been accepted for an approved dietetic internship.

The following is the procedure for selection of the six recipients of the Mead Johnson Scholarship Awards for Dietetic Interns:

1. Selection of the six recipients of Mead Johnson Awards shall be made by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association in accordance with the policy approved by the Executive Board.
2. Applications may be obtained on request from the Headquarters office of the Association.
3. Applications for the scholarships shall be submitted by interested college seniors or graduates to the Executive Director, The American Dietetic Association by March 15 of each year. Said application must include a transcript of college credits and pertinent information, including justification for the scholarship.
4. The six recipients shall be selected by a majority vote of the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association. In case of a tie vote, the President of the Association shall cast the deciding vote.
5. Announcement of the scholarship awards shall be made and the monies made available to the recipient by the Executive Director one month prior to the beginning date of the internship.

Other considerations:

1. If for any reason the recipient fails to enter the internship, the scholarship shall be recalled.
2. The recipient is expected to practice in the field of dietetics for at least a year following the internship, barring unforeseen circumstances.

Mead Johnson Awards to The American Dietetic Association for Advanced Graduate Education in Dietetics

Mead Johnson & Company has made funds available to The American Dietetic Association for two $1000 grants for advanced graduate education in dietetics. The recipients are to be chosen by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association. Administration of the entire program is to be carried out by the Association.

To qualify for the Award an applicant must:

1. Be a member of The American Dietetic Association.
2. Intend to practice in the field of dietetics.
3. Appear to possess attributes for success in the practice of dietetics.
4. Need funds to help attain his educational goal.

The following is the procedure for selection of the recipients of the two $1000 grants for advanced graduate education in dietetics:

1. Selection of the two recipients for the Mead Johnson grants for advanced graduate education in dietetics will be made by the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association in accordance with the policy approved by the Executive Board of Association.
2. Recipients shall be selected by the majority vote of the Awards, Scholarship, and Loan Fund Board of The American Dietetic Association. In case of a tie vote, the President of the Association shall review the records and cast the deciding vote.
3. Any member of the Association may apply for or nominate one or more applicants.
4. Applications may be obtained on request from the Headquarters office of the Association.
5. Applications for the fellowships accompanied by complete, pertinent information and justification shall be sent to the Executive Director on or before February 15 of each year. Immediately on receipt of each nomination, the Executive Director shall send it to the Chairman of the Awards, Scholarship, and Loan Fund Board.
6. Applicants for the Fellowships shall have the following qualifications:
   a. Be a member of The American Dietetic Association.
   b. Have been accepted for or must have already embarked on a program of graduate study.
   c. Show need for financial assistance for the completion of his program of study.
   d. Be endowed with the attributes for success in the practice of dietetics.
   e. Show interest in and intention of continued practice in the field of dietetics.
7. The Board, in selecting recipients, shall give due consideration to:

a. Those applicants who would be able to complete their graduate study without interruption if they received financial assistance.
b. Family responsibilities which have made it difficult for the applicant to make adequate financial arrangement for his graduate education.
c. Competent dietetic interns who should be encouraged to continue graduate study on completion of the internship. Such individuals would not have had the opportunity to earn and save for graduate study.

8. Each award of $1000 will be granted for a period of one year, the year to begin on September 1, the award to be paid in two installments of $500 each.

Influence of Beverages on the Gastric Secretions after Surgery

An investigation conducted at The Ohio State University Health Center was undertaken to determine the effect of three assumed stimulants (coffee, tea, and orange juice) on the gastric secretions of surgically treated patients in the immediate postoperative period. A fourth beverage, cocoa, was included on the basis of its reputation as a possible causative agent in the problem of the dumping syndrome. All of the beverages were given to the subjects in combination with a basal meal.

Three groups of patients were studied. Group I, the control group, included three patients whose surgery necessitated the insertion of a gastrostomy tube, but who had no other upper gastrointestinal surgery. Three patients who demonstrated irregularities of the gastrointestinal tract and were treated surgically by the hemigastrectomy and vagotomy procedures comprised Group II. Six patients, composing Group III, demonstrated irregularities of the upper gastrointestinal tract and were treated by vagotomy and another procedure which did not alter the stomach size.

To evaluate gastric secretory response to the test meals, a two-fold investigation was conducted. Gross subjective clinical observations were made concerning acceptance of food, emotional state of the patient, and occurrence of symptoms of the dumping syndrome. Laboratory analyses were conducted to determine the free and total acid concentrations of the gastric contents of each subject on a fasting day and following the ingestion of the five test meals.

Emotional impact on gastric secretions was observed in two subjects of Group I who appeared to be affected by both their environment and illness and seemed to be extremely anxious. Other patients, despite the unfamilarity of the hospital, did not appear to be emotionally unstable. Symptoms of the dumping syndrome were observed only in one patient in Group II. The occurrence of these symptoms followed the basal meal and did not recur with subsequent feedings.

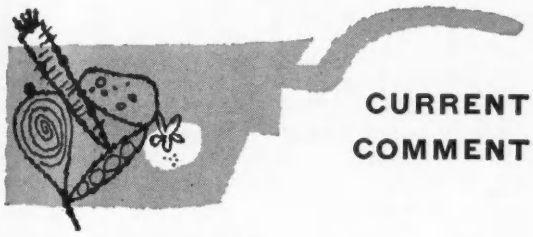
The analyses of the gastric contents of the patients of Group I following the five test meals showed that the coffee meal produced the greatest responses in free acid production. One patient, however, was achlorhydric to all except the basal test meal. The orange juice meal was the least stimulating for these patients.

Achlorhydria was experienced by two patients of Group II in response to all five test meals. A third patient demonstrated free acid to all but the cocoa meal.

None of the six patients in Group III experienced free acid at the basal meal and only one after the meal with cocoa. Free acid was present in the gastric contents of five patients following the tea meal. Four patients responded to the orange juice meal and three to the meal with coffee, as demonstrated by the presence of the free acid. In general, the quantities of free acid produced by these patients were slight and less than the amounts evoked from the patients of Group I.

This exploratory study has reaffirmed the great degree of individuality among human subjects. The variations of acid production experienced by these twelve patients have seriously limited the establishment of conclusions. A larger sampling would be more suitable when a future study is made of the secretory responses of postoperative subjects following the ingestion of certain foods.

On the basis of the available data, no conclusive evidence was found which would prevent any of the patients of this study from enjoying coffee, tea, cocoa and orange juice when the beverages are taken with a meal. Rather, the inclusion of these foods would indicate a return to the patient's dietary habits established before his illness, which is one of the goals of the surgical treatment of peptic ulcer.—*Submitted by Marion Mason and Martha Nelson Lewis, Department of Preventive Medicine, The Ohio State University, Columbus.*



CURRENT COMMENT

A Nutritionist's Work in the South Seas

J. WHITEMAN

Nutritionist,
South Pacific Health Service,
Suva, Fiji

IN THE South Pacific, there are many groups of small islands in various stages of political development which are administered by various nations—Britain, France, New Zealand, and the United States.

The South Pacific Health Service is a British and New Zealand governmental organization, the main function of which is the coordination of health and medical work in the islands administered by these governments.

These territories, although small in land mass, cover a wide area of the South Pacific, from the British Solomon Islands Protectorate in the Northwest to the Cook Islands in the Southeast. The South Pacific Health Service provides a pool of medical officers, who are transferable from one territory to another, as the need arises. It also provides the services of two nutritionists who visit the various territories as required and provide teaching aides and information relating to food and nutrition for distribution in the territories. The individual territories would not be able to afford to employ their own full-time nutritionists, but through the South Pacific Health Service they are able to benefit from the services of a "shared" nutritionist. The Medical Department of the Fiji Government also employs a dietitian to supervise the food service in the hospitals of this colony. In the other territories, the Health Service nutritionist may act as a consultant on hospital feeding in addition to carrying out a program of nutrition education or research.

People of many different races live in the South Pacific. The Melanesians of the Solomon Islands, New Hebrides, and Fiji have many customs that are quite different from those of the Micronesians and Polynesians, who live in the Gilbert and Ellice Islands, Samoa, Niue, Tonga, and the Cook Islands. In addition, Europeans, Indians, and Chinese have migrated to some of these islands.

The Melanesians, for the most part live on large (for this part of the world) rugged islands of volcanic origin, covered with tropical bush trees. The Micronesians and most of the Polynesians live on small, flat coral islands, covered with coconuts. Consequently the foods and food habits of the people, although they have many similarities, vary considerably.

Barnard (1) has described a number of the foods of Fiji, many of which are found in the other islands also. The staple food throughout the South Pacific is some kind of starchy root vegetable or fruit. This may be supplemented with sea foods, green leaves, and coconut cream—and in recent years, with imported tinned and cereal foods. Fruits and nuts are usually eaten between meals—mostly by the children. (All food is eaten with the hands.)

Two meals a day are customary in most of the islands—one in the evening when it is becoming cool and one fairly early in the morning before the heat of day. The day-to-day diet may consist simply of the staple carbohydrate food. This rather monotonous diet is relieved by feasts at various social functions, such as births, deaths, coming of age, and weddings. The frequency and size of feasts depends largely on the food available.

In Tonga, there is a minor feast every Sunday, and a major feast every few weeks. The islands of Tonga are small and for the most part surrounded by a coral reef. Vegetables and coconuts grow well, and animal life on the reef and in the sea is abundant. On Saturday afternoons, the villagers are all busy fishing or gathering reef foods, such as sea eggs, sea slugs (*beche de mer*) and sea weeds, or brush greens for the Sunday feast. For major feasts, pigs and/or turtles are served, as well as special puddings made from pounded root vegetables and coconut cream. There are many different forms of puddings found in the various islands, nearly all of which are solid and rather heavy—heavier than an English suet pudding.

In the inland areas of the large islands, the menu is not nearly as interesting as near the coasts, owing to the absence of sea foods, although a number of different green leaves and even insects may be eaten.

Cooking Methods

In the South Pacific many different cooking methods are used.

In the highlands of New Guinea, sweet potatoes are the staple food. They are simply placed in hot embers and taken out after about an hour. The women peel off the skins with their bare hands.

In the British Solomon Islands Protectorate, large hollow bamboo stems are used to carry water from streams in the valleys up to the villages on the ridges, and smaller stems serve as cooking vessels for green vegetables. Leaves are stuffed in the green bamboo stem, which is put directly on hot stones.

The traditional form of cooking on most of these

A Fijian family dinner

islands is the earth oven, although today it is used mainly for cooking for feasts, having been supplanted by the iron pot for everyday cooking.

The earth oven is formed by a slight hollow in the ground, which is lined with hard, oval stones about 4 in. in diameter. A first row of sticks is made over the stones. When this has burned, the stones are rearranged, either with the bare hands or with bamboo tongs. Some root vegetables—peeled or unpeeled—may be put directly on the stones; otherwise, the oven is lined with large green leaves, on the top of which the food is placed and covered with more green leaves and hot stones. Sometimes earth and possibly a damp sack covers all this. In the old days, this oven was in the same house where the people lived and ate, but today in many places, separate kitchen houses are built.

Many of the foods cooked in the earth oven are cooked in *lolo* (coconut cream) and put in a green leaf envelope. *Lolo*, the Fijian name for coconut cream, is the white milky liquid expressed from the grated flesh of the ripe coconut. Shells, or the midrib of a coconut leaf, were formerly used for grating, but today, nearly every house has a special metal coconut grater.

Fish, shell fish, green leaves, and corned beef are often cooked in *lolo* in leaf envelopes, and the result is delicious.

In the Solomons, leaf envelopes are uncommon, and green leaves are boiled in a boat-shaped wooden bowl and mixed with heated *lolo*. Hot stones are dropped into the raw green leaves in a bowl and covered with banana or ginger leaves. In some places, the stones are dipped in cold water first to wash off any ash; in others, they are rubbed with coconut husk. The *lolo* is heated in the same way and the two ingredients then are mixed.

When the iron pot is used, food is boiled either in fresh water, sea water, or *lolo*. Certainly it is not as much work, but from a nutritional viewpoint, the earth oven conserves more nutrients.

It is the custom in many parts of Melanesia and Polynesia for men to eat first, and the women and children afterwards. This custom is satisfactory when the various foods are in plentiful supply, but where protein foods are scarce, it means that the women and children do not receive their fair share. The average Pacific Islander thinks of food as simply something to fill an empty stomach. The conception of different food values is something which is only just beginning to be introduced to these islands. The spreading of this knowledge is, of course, one aspect of the work of the nutritionists in the South Pacific.

Nutritive Value of South Pacific Diet

During the past decade, research (as yet unpublished) into the nutritive value of the diets in the Cook Islands, on Niue Island, in the Tonga Islands, and in the Gilberts has been done by nutritionists of the South Pacific Health Service, and by other interested workers (2-4). Many of the foods eaten by these people have also been analyzed in New Zealand and in the laboratories of the South Pacific Commission.

The data from this work have been used as a basis for planning nutrition programs in the area. These studies have shown clearly that an adequate diet *can* be obtained from indigenous foods and that foods not usually considered as good sources for particular nutrients may contribute large quantities of such nutrients to the diet, because a food is eaten in such large quantities.

The nutrient content of some diets may contain considerably less of some nutrients than are recommended by authorities, particularly for people living in the interior of some of the larger islands where good protein and calcium foods may be in short supply.

Nutritional Problems

Cases of severe nutritional deficiency, such as beriberi or pellagra, are almost unknown, but this does not mean that there is no room for improvement. Some of the dietary changes that are going on in these islands today are not always changes for the better.

The major nutrition problems at present in the islands covered by the South Pacific Health Service are:

(a) Malnutrition of infants after weaning.
(b) Anemia in Indian women in Fiji.
(c) The unwise buying of imported foods.
(d) Dental caries.
(e) Feeding in institutions.

Infant malnutrition seems to occur most frequently at about six months of age among Indian babies, and at approximately a year among Pacific Island babies. The main reason for this seems to be

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Some of the nutrition teaching materials produced by the Nutrition Section, South Pacific Health Service

ignorance of the principles of infant feeding which, in Melanesia, may be combined with a lack of time for the women to make special foods for their babies.

Anemic Indian women with an insufficient supply of breast milk may let several weeks pass before they take steps to find out why their babies are not growing well. Or, they may give their babies a powdered or evaporated milk formula diluted with as much as twice the amount of water recommended, not realizing that the infant is thus not getting sufficient food. Indian mothers appreciate the value of milk as a food and always try to give it to their children. Thus when the Indian baby is weaned, he will usually be given some milk to drink.

On the other hand, milk is not part of the traditional Pacific Island diet, and in most of the small islands, fresh milk is not available. When the child is weaned—usually at twelve months—he may be given only starchy root vegetables in place of breast milk. The problem is being tackled mainly by the district nurses—locally trained Pacific Island girls —in their maternal and child welfare clinics.

Anemia seems to be common among Indian women all over the world. It may be due in part to frequent pregnancies as well as to dietary deficiencies in the diet, which in Fiji, is usually vegetarian or semi-vegetarian.

Unwise buying of food is, of course, a problem in many parts of the world. Everywhere, sweet foods and refined cereal foods are becoming increasingly popular. It is only in recent years that Pacific Islanders have started to buy their food. The great majority still grow most of their food in small gardens or catch it on the reef or in the sea, but more and more people are supplementing this food with food bought in the shops. Today, even in the more remote villages, there are often small stores carrying a few lines of imported foods.

Food budgeting or "shopping round" for cheaper brands or comparing prices in different shops is something the average Pacific Islander does not do. Another problem is that, to the average Pacific Islander, a pound of sugar, a pound of flour, or a pound of milk may all seem equally suitable to fill an empty stomach. Thus he naturally chooses the one he likes best. Pacific Islanders are very generous people, and they love entertaining. The ambition of many Pacific Island women is to learn to make sponge cakes, because (a) they like the flavor, and (b) it is a food Europeans offer when they are entertaining.

Changes in the Pacific Island Diet

Time marches on even in the idyllic South Seas, and the mode of life, including the food habits, is changing. More and more people are being educated, and being educated to a higher standard of living; old taboos are being discarded; people are earning more money and buying food as well as growing it. Young men, and women too, are moving into the larger communities looking for white collar jobs. Others go to work on coconut or coffee plantations.

In the plantations, the workers are usually fed on rations issued by the employers. In most of the territories, legislation specifies the minimum ration, and the nutritionists with the South Pacific Health Service advise on the content of these rations. In addition to supplying a diet with adequate nutrient content, they should contain foods that are acceptable to the workers and that can be prepared with the equipment available.

Rice or bread are the most common energy foods, as it is impossible to obtain sufficient quantities of native root vegetables to feed the numbers involved. Tinned or fresh meat or fish and some form of tinned milk are also given, in varying amounts.

Tea and sugar are usually issued for fluid and flavoring.

Work of the Nutrition Section

The nutritionists with the South Pacific Health Service spend part of their time in the headquarters office in Suva on Vita Levu and the remainder travelling round the territories. The nutritionist visits the territories as a consultant, and the actual work she will do there will largely depend on the administrative and medical authorities in the territory. It may include dietary surveys, teaching and education, and teaching aids.

Recently, the Pacific Islanders have been given their own daily dietary poster, on which foods are divided into three groups: (a) body-building, (b) protective, and (c) foods for work and play. Explanatory booklets for nurses and teachers have been written to help them understand the poster and use it effectively in their teaching in the schools and villages. Separate Hindi and Gilbertese editions will have to be prepared, as the Indians living in Fiji and the Gilbertese eat different foods from those of the Pacific Islanders in general.

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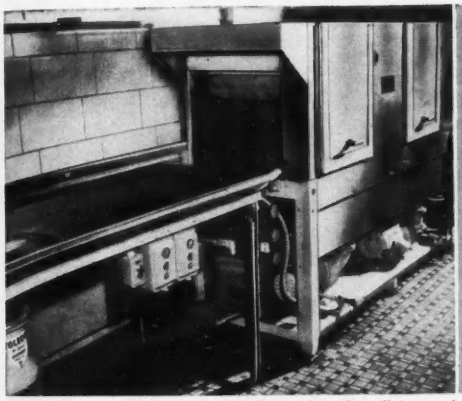

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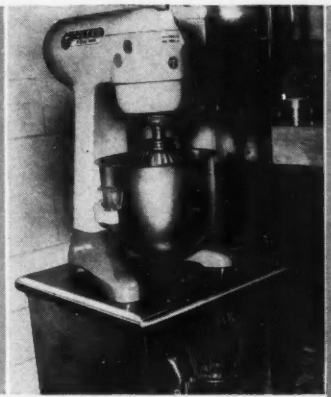

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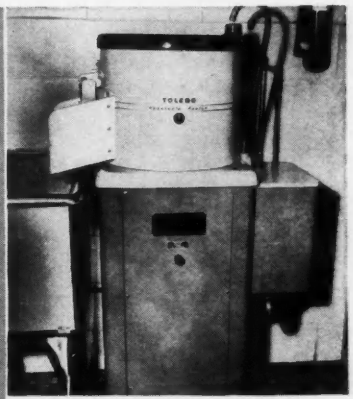

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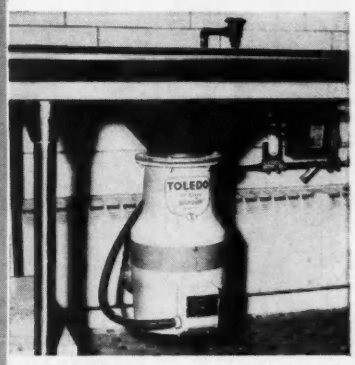

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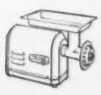

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It was largely due to the efforts of the nutritionists that nonfat dry milk was popularized in Fiji, and bulk iodized salt introduced to the main stores in areas where goiter was fairly common. The nutritionists are always on the lookout for cheap, nutritious foods that might be acceptable to Pacific Islanders.

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A Circuit-Riding Dietitian

MARGARET L. HALL
Marinette, Wisconsin

DIETITICS HAS always been a pioneering field, with new opportunities and fields to explore and a horizon limited only by the dietitian herself. One of the most recent phases to unfold in this field is that of the shared, or "circuit-riding" dietitian. I ride my circuit in northern Wisconsin—to Oconto County and City Hospital in Oconto and to Bellin Memorial Hospital in Green Bay, from Marinette.

The Oconto hospital is a bulging 42-bed hospital with an active staff of three general practitioners who bring all of their hospital patients to us. In addition, we have specialists, such as an orthopedic surgeon, who comes from Green Bay. The hospital was established in 1922 with about half the present number of beds, and enlarged to its present capacity in 1931. Our three Board members are appointed for life—one by the county medical association, one by the City Council, and one by the County Board of Supervisors.

The need, when I began my circuit-riding to Oconto, was primarily for help with therapeutic diets. The first cook had been there twelve years, and the second cook three years. Both are homemakers and noted for their cooking skills.

My coming had been discussed by the administrator with everyone in the kitchen. In fact, they helped decide that they wanted someone to help with the therapeutic diets. Therefore, not only was there no resistance to my joining the staff, but I was welcomed since my coming was partially their idea.

We also worked out the hours together. We agreed on a program calling for work three mornings a week, but flexible enough that if longer hours were necessary, I would work longer. On Monday, Wednesday, and Thursday mornings I drive from Marinette with my briefcase of "possibles," just as the old-time medical and ministerial circuit riders did. In my case, these include: (a) a nutrition reference book—*Nutrition and Diet Therapy* by Proudfit and Robinson (1); (b) the Meal Planning and Exchange materials for diabetic diets; (c) several copies—some old, some new—of *ADA Forecast*, published by the American Diabetes Association, which are a great help to some of the diabetic patients; (d) a booklet on modified diets, such as low-sodium diets; (e) recipes for dishes to be used in therapeutic as well as general and soft diets; (f) menu ideas; (g) notebook and pencil; and (h) *Food Values of Portions Commonly Used* by Bowes and Church (2).

Parenthetically, I might comment that careful advanced planning of things to carry with me is essential. Like the old-time country doctor, I cannot run back home to get something I have forgotten. I learned this, to my chagrin, on the day it was 17° below zero, when I wore shoe-boots and forgot my white shoes!

Qualifications of a Circuit-Rider

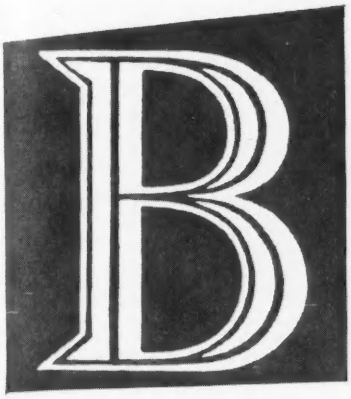
In addition to the tangible items listed above, certain "intangibles" are needed by the shared dietitian, who may be defined as one who is either shared by her home and one hospital or shared by two or more hospitals and her home. Her intangibles should include:

Experience. Members of The American Dietetic Association who have taken internships have become acquainted with the operations of large hospitals, but the need in a shared dietitian's life is for experience in a small hospital—probably one where she has been the only dietitian. In this way, she understands the need to combine several job responsibilities in the kitchen, to fit menus to the equipment, and the necessity of helping out "in a pinch."

Patience. In working only a few days a week in a place, one must be patient. You cannot expect to make changes as if you were there all the time, and it is futile to chafe about the situation. You must remember that you are there to help, and that you should not reduce the feeling of responsibility of the full-time employes, since they must go ahead with the job when you are not there.

Reliability. When you accept a part-time position, you must feel the same responsibility for being there that you would if you were working on a full-time basis. Since an important factor in circuit-

[1]Presented at the Conference on Small Hospitals at the Tri-State Hospital Assembly in Chicago, on April 28, 1959.



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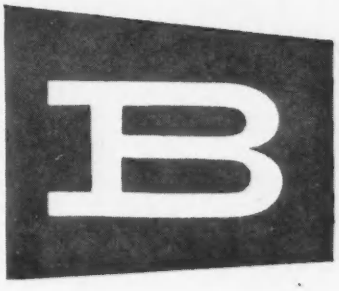

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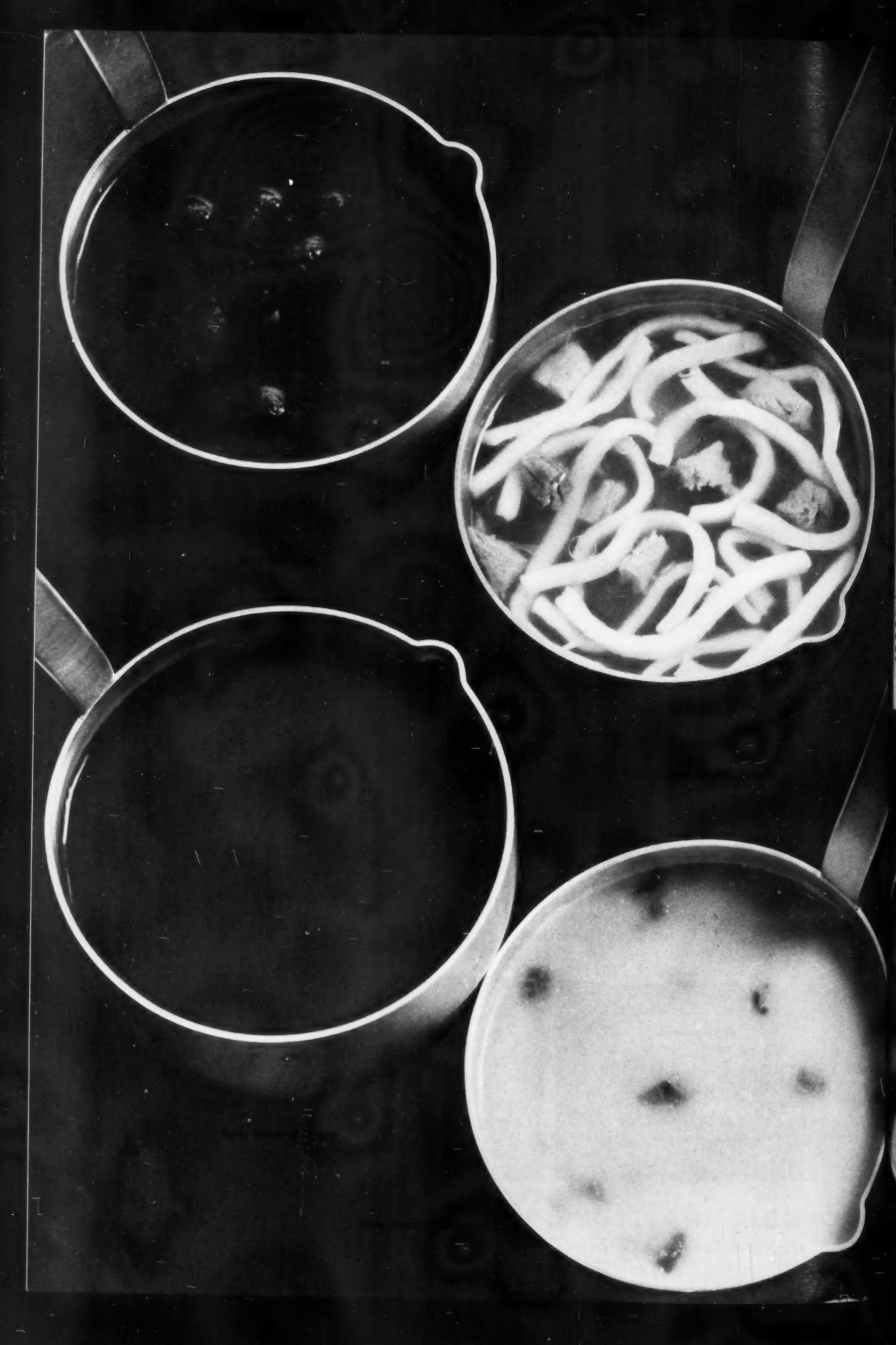

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riding is likely to be transportation, especially in the winter, check to learn bus and train schedules. Then, alert all key personnel in the hospital in case you are delayed in arriving when a storm forces you to take public transportation.

It is also essential that you have an agreement with the administrator that you can be called if needed on the telephone to help on the days you are not ordinarily on duty.

Tolerance. Another necessary characteristic in this new type of dietetics is tolerance. Remember that the hospital has been operating for some time or always without a qualified dietitian, and that errors are made only because of ignorance, not carelessness. At Oconto, I am the first dietitian ever employed, so I am not following in anyone else's footsteps. This has both advantages and disadvantages.

Flexibility. The ability to adjust is as necessary, or even more necessary, for a dietitian in a small hospital as it is for the other members of the hospital team. In a place that has not had a dietitian, many of the personnel have at some time had to help with diets. Therefore, any changes or new regulations you may wish to make must be carried out by word of mouth on a friendship basis rather than by the memo system used in large hospitals.

Ability to Teach. Above all, a dietitian is a teacher. In a small hospital, however, she must also be a co-worker. The old saying that showing by doing is best is so true. When baked ground beef patties for patients on soft, low-sodium, and low-fat diets become routine, or your chocolate sauce recipe is used by each cook, then you have taught adequately.

Professional Ethics. This cannot be stressed enough when you are working in two or more hospitals. You must be very careful not to carry tales, however innocently.

Problems Encountered

At Oconto, the first thing we started to do was to develop the modified diets. Since there were then no formal menus, I prepared a form for the more common diets, which we had duplicated. We worked rather slowly on this project, dealing with the different diets only as each needed attention. I discussed the diets with the doctors and then set up the menu patterns. Then, by explaining a little at a time the most important parts of each diet, especially the pitfalls, to all the kitchen people, the routine diets were set up. We file these so that they are convenient for the kitchen personnel to use until I am able to visit a patient. This is also done for diabetic diets.

To facilitate matters further, I drew up an outline of the Meal Planning and Exchange system for patients with diabetes. When a new patient is admitted, this is used in the kitchen without change until the next time I am there. Since I work three half-days a week, only a day or two elapses before I can see the patient. I check with the patient to learn if the general meal plan fits that used in the home; if not, I adapt the exchange system to fit the circumstance and make two copies. One is used in the kitchen as a work sheet, and the other goes to the patient. At each meal, he looks over his tray with his meal pattern in hand to learn the quantity, types of foods and exchanges, and to associate them with his outline. Then I either give him a Meal Planning and Exchange booklet or a one-page outline of substitutions—whichever seems to fit the individual better. When he goes home, we file the work sheet so that if he ever returns, the kitchen personnel can pull it out of the file and use it without waiting or recopying and with little chance for error. In this manner, the patient is taken care of with a minimum of trouble. When a dietitian is not always at a hospital, this type of sheet seems to be better than simply listing the food exchanges. Also, by this method, we have eliminated the fear of the dietary personnel of not knowing what to do with patients with diabetes.

It is as necessary for a shared dietitian to keep close contact with all patients as if she were employed full time. The diets are still her full responsibility. To promote this, I have worked out a plan of cooperation with the medical and nursing staffs.

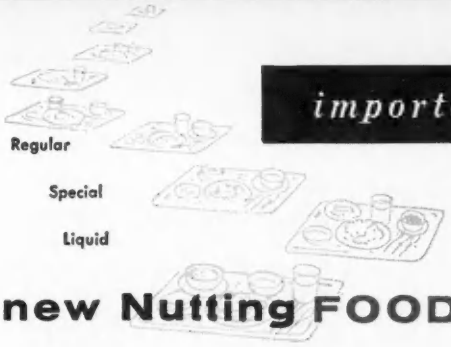
Within a few minutes after I arrive at the hospital, I have an informal talk with the dietary personnel about new patients, the diets they require, how well they are eating, and how long they have been hospitalized. Of course, I also get some family background. Later in the morning, I check the dietary sheet with the nurses. I try to do this after the doctors have made rounds, but early enough so that at least one or two are still in the house, especially if I feel I need additional information about any patient. I also make it a point to be available to talk to all the doctors by being on the floors at least two or three days a week when they are there, even if it means taking more time than usual just to check the diet list. Thus I am able to keep in constant touch with the doctors concerning their patients. Through such contacts, the modified diets "come alive" for both myself and everyone concerned with the food.

Dietary instruction is given only when I am on duty. If a patient is discharged before I can instruct him, then his instructions are mailed the next time I am there. However, by close liaison with the medical staff and nursing service, it is fairly easy to know far enough ahead to plan the diets so that the patients can usually have them before they leave. Diabetic instruction, of course, is started as soon as the patient is fairly well regulated.

Bellin Memorial Hospital

In March 1958, Bellin Memorial Hospital, a 150-bed Methodist hospital, in Green Bay, became the second

important FOOD SERVICE news



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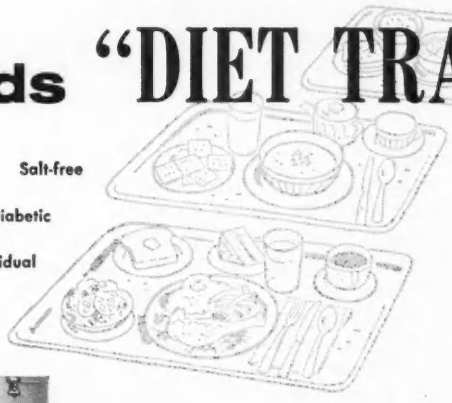

Here for the first time is a food service system that ends one of the biggest problems facing dietitians . . . "Diet Tray Confusion." FOOD-*ala*-CART is the first and only food service system to provide *one oven drawer* for *every serving tray!*

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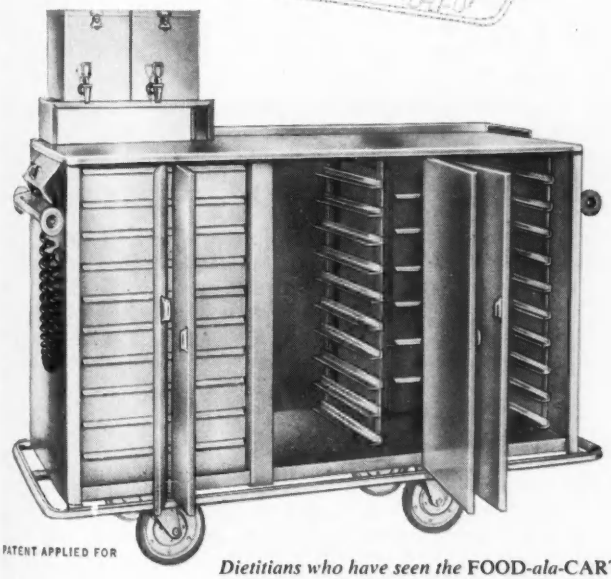

PATENT APPLIED FOR

Dietitians who have seen the FOOD-*ala*-CART system say it's the easiest to use equipment they have ever seen. Its design is based on a comprehensive research study among dietitians. These dietitians told us it's not the fixing of the food but the serving that is the big problem. The Nutting FOOD-*ala*-CART answers the serving problem best because it simplifies it, ends "diet tray confusion," keeps foods appetizing, refreshing, delicious tasting right to the patient. It is truly *the new standard of fine food service for hospitals.*

Only the new FOOD-*ala*-CART system offers *all* these features!

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stop of my circuit. There are two full-time dietitians at Bellin—one the chief, the other the therapeutic—and an administrative assistant in the main kitchen. Thus the need again was for part of a dietitian, primarily to help with the therapeutic diets.

This situation fitted in beautifully with my other arrangements. Here the more flexible and more experienced a part-time dietitian is, the better for the institution, for she can help with any phase of dietetics. Also, what is used at one place can sometimes be used in the other, as with the meal planning outline at Oconto, which is now also being used at Bellin.

Just as would be true for a full-time dietitian, the duties of a shared dietitian overlap. There is no hard and fast line between all therapeutic work and all administrative. Again, it is advantageous for the hospital if the shared dietitian has had some years of experience which she can use in helping to set up new procedures. For example, last year, we distributed selective menus to patients on the general and soft diets and later made a second trip to collect them. By pooling our ideas and experiences, we decided to include instructions on the back of the menus which are sent to patients on the breakfast trays. We now have perforated forms, with the instructions printed on the back and the menus duplicated on the front.

On the top strip are the instructions to the patient requesting him to write his room and bed number and name on each strip, to circle the items desired, and the time when the menu will be collected. The center section presents information about the hospital and varies. We have seven different "write-ups" for this, one being about dietitians and The American Dietetic Association; one about our chapel; one about historical highlights of our school of nursing; one on dietary department statistics; one on general information about the hospital; and one which is a questionnaire to learn the patient's reaction to the food.

When I first began work at Bellin, selective menus were used only for regular and soft diets, but they are now used for other modified diets as well. Incidentally, we have found that it is easier for the patient or family to mark a menu than for dietitians to handle them all. Our modified diets include: sodium-restricted, fat-restricted, diabetic, and bland. At present, along with the routine work, I am revising the modified diets to include an "interest item" at least once a day. This is especially needed for our diabetic and sodium-restricted diets. Hand in hand with the revision of the modified diet menus, a recipe file is being developed.

Do You Qualify?

Homemaker dietitians might well consider employing their talents as shared or circuit-riding dietitians. Few women are as well equipped to do really fine community service. Drives, fund-raising programs, and so on are well worth while, of course, but many other women can do such work, whereas you may be the only one in your community who could give the much needed, professional dietetic help to a hospital.

Hours spent in this type of dietetics can easily be made to fit into any home situation. Part-time work is stimulating and provides a great feeling of accomplishment. You are a welcome addition to the hospital family. You keep abreast of the newer trends in your profession. Since such work does not entail that day-after-day "grind," you have no opportunity to become "fed up" with your job. And, if you are shared between two hospitals or must travel a few miles to your work, you can also enjoy the great outdoors along the way; drives are no longer confined to Sunday excursions. Best of all, there is a regular pay check involved.

References

(1) PROUDFIT, F. T., AND ROBINSON, C. H.: Nutrition and Diet Therapy. 11th ed. N. Y.: Macmillan Co., 1946.

(2) BOWES, A. DEP., AND CHURCH, C. F.: Food Values of Portions Commonly Used. 8th ed. Philadelphia: A. deP. Bowes, 1956.

The Philosophy of Education

There is one characteristic which has always been traditional in the make-up of a truly professional person. It is the dedication of a person and his talents to the service of others . . . Professional men are supposed to be more unselfish—their talents and knowledge not for themselves alone; a God-given trust for help of others. Although learned and skilled, they live primarily to serve others—and to serve in areas of great human need and in confidential relationships.

I have a feeling that today some are seeking the prestige of professional status without realizing and accepting the responsibility of service to others . . . . We need to restore the term "service" to its sacred dignity . . . Take service out of the life of a priest, a doctor, nurse, technician and what is left? A cold theologian, a heartless doctor, a scientist, and a merciless nurse and technician. The very nobility of great professions will be undermined.—*Rev. John J. Flanagan, Executive Secretary, Catholic Hospital Association, St. Louis.*

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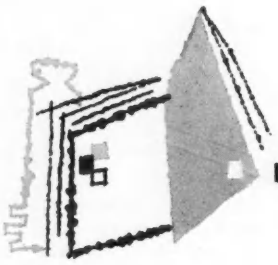

BOOK REVIEWS

Low-Fat Diet. Reasons, Rules, and Recipes. By Roy L. Swank, M.D., and Aagot Grimsgaard. Eugene, Oregon: University of Oregon Books, 1959. Paper. Pp. 144. Price $2.50.

These authors, working in the Division of Neurology, University of Oregon Medical School, have compiled a book which is oriented to the patient. They make no extravagant claims for low-fat diets, but believe that the one described has been beneficial to the majority of more than three hundred patients with multiple sclerosis whom they have treated. They feel that patients with vascular disease or multiple sclerosis are not in a position to wait for years until the issue of low-fat diets is settled.

The first three chapters comprise the reasons for the low-fat diet—the trend of the past, present, and future, what fats are, and the development and uses of the diet.

Chapter Four, "How to Go and Stay on the Low-Fat Diet" consists of a set of "rules" designed to limit the fat intake to 3 tsp. animal or hard fat, 3 tsp. fish or vegetable oil, and 1 tsp. cold-liver oil, totaling 35 gm. fat daily. Various cooking suggestions are given, including the use of mineral oil, culturing of your own low-fat cheese, and a home-made laxative for those who suffer from constipation. In view of the possible hazards in taking mineral oil and the possible contraindications for the use of laxatives, some readers will consider these discussions out of place in this book.

The remainder of the book is devoted to a variety of recipes, including all food categories from canapes to frostings. The recipes sound appetizing and appear to be easy to follow. The amount of hard fats and vegetable oils are given for each recipe. New ideas for low-fat dishes are presented, but some of the recipes should be termed "moderate-fat."—*Clara Karl, University of Chicago Clinics.*

Fast and Fancy Cookery. By John Philips Cranwell. Garden City, New York: Doubleday & Company, 1959. Cloth. Pp. 239. Price $3.75.

Intriguing to those of us with limited time for food preparation are such books as this one. "Trial runs" of a few of the recipes by the reviewer indicated thoughtful writing, with recipes calculated to permit repeated successful preparation of ths dishes.

The author introduces his sections and recipes in a pleasant conversational style which encourages enjoyable browsing, even though every recipe may not appeal. He assumes that the reader has some knowledge of basic cookery principles or at least the ability to obtain such from other cook books. The recipes (most of which can be prepared in an hour) are all planned for those who would entertain at table in a gourmet fashion. Most of the sections, from hors d'oeuvres through dessert and drinks, include twelve or more mouth-watering recipes, all bearing highly individualized titles.

Interest-catching ideas, such as caviar in the Russian dressing or pairing of baby artichoke hearts with sliced smoked salmon, are scattered throughout the book. His version of lobster Cantonese is a tasty and quick version of a favorite recipe. Wines and other beverages are included as ingredients in a number of the recipes.

Supply lists for the larder and the cellar are presented in an appendix. These seemed more extensive than the average reader would be likely to possess but might be used as guides to consider as additions are made. A second appendix, on the other hand, lists utensils and appears to be based on regularly used items.

All in all, the attractive cover, the title, the format, the recipes, and the running discourse make this a most enjoyable reading experience for cook book lovers.—*Dorothy W. Inyard, Credentials Service Director, The American Dietetic Association, Chicago.*

A Guide to the Integration of the Dietary Clinical Experience in the Nursing Curriculum. Second edition. By Ruth S. Long and Philomene A. Serpico. Boston: New England Baptist Hospital (Dietary Department), 1958. Paper. Pp. 48. Price $2.

The integration of the dietary experience for student nurses enables them to correlate normal nutrition and diet therapy with total patient care. This booklet concisely sets forth one of the earlier programs utilizing this concept of teaching and would be helpful in planning or revising an integrated dietary experience. The principles and objectives, as well as the organization and mechanics of the program, are covered in the introduction. Typical lesson plan outlines, students' final evaluation record forms, and sample tests are also included. The last section of the booklet is a copy of the student manual which includes, in detail, the philosophy of the program and general objectives. There is an information sheet for students which offers complete instructions for written work and records. Various forms and nursing care study plans are given.

While this booklet has been planned for a specific school of nursing, it could well serve as a useful guide for others interested in the integrated approach to the student nurse's clinical dietary experience.—*Frances Kendall, Teaching Dietitian, Grace-New Haven Community Hospital School of Nursing, New Haven, Connecticut.*

RECENT BOOKS RECEIVED

The Chemistry and Technology of Cereals as Food and Feed. Edited by Samuel A. Matz, Ph.D. Westport, Connecticut: The Avi Publishing Company, Inc., 1959. Cloth. Pp. 732. Price $15.

Food Values in Shares and Weights. Second edition. By Clara Mae Taylor, Ph.D. New York: The Macmillan Company, 1959. Cloth. Pp. 116. Price $4.

Nursing Home Management. By Ralph C. Williams, M.D., Margaret Bull Armstrong, R. N., J. Fred Gunter, Edith McCulloch, R. N., and Jack Stiller. New York: F. W. Dodge Corporation, 1959. Cloth. Pp. 230. Price $8.50.

The Boys' Cook Book. By Helen Evans Brown and Philip S. Brown. Garden City, New York: Doubleday & Company, Inc., 1959. Fabricoid. Pp. 285. Price $2.95.

A Cookbook for Diabetics. By Deaconess Maude Behrman, edited by Leonard Louis Levinson. New York: The American Diabetes Association, Inc., 1959. Paper, spiral bound. Pp. 172. Price $1.

That the Patient May Know. By Harry F. Dowling, M.D., Sc.D., and Tom Jones. Philadelphia: W. B. Saunders Company, 1959. Cloth. Pp. 139. Price $7.50.

InsulinTreatment in Psychiatry. Edited by Max Rinkel, M.D., and Harold E. Himwich, M.D. New York: Philosophical Library, 1959. Cloth. Pp. 386. Price $5.

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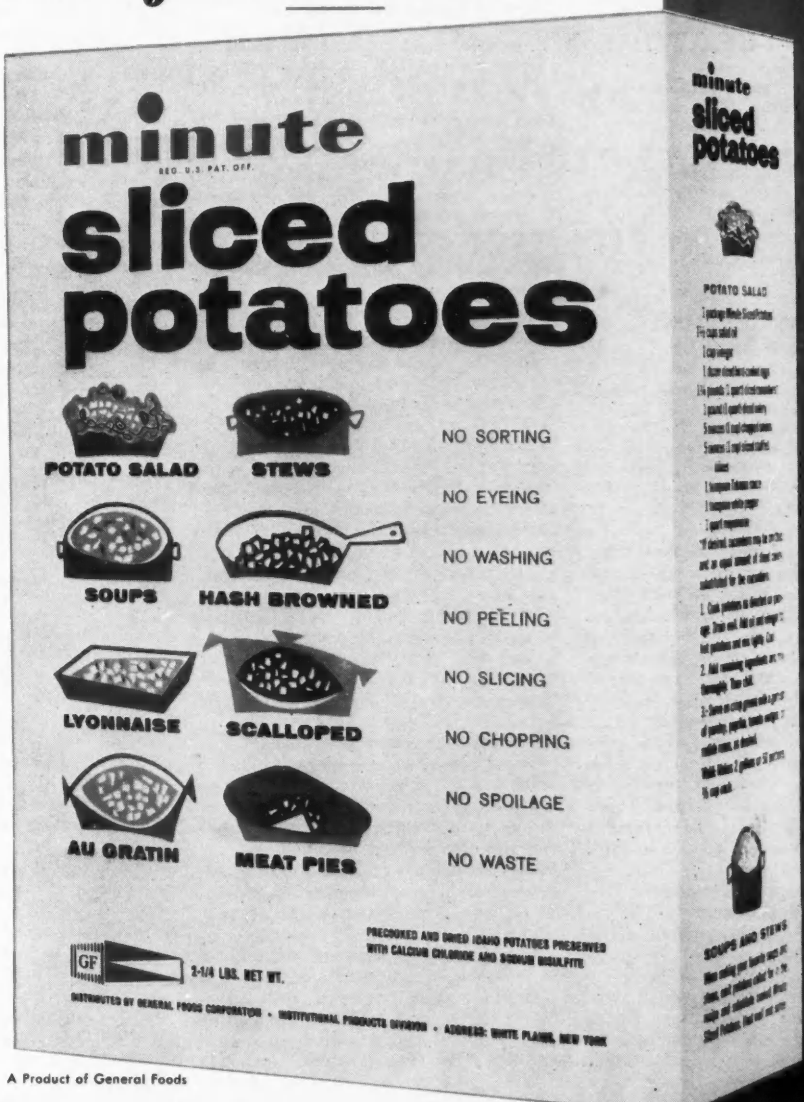

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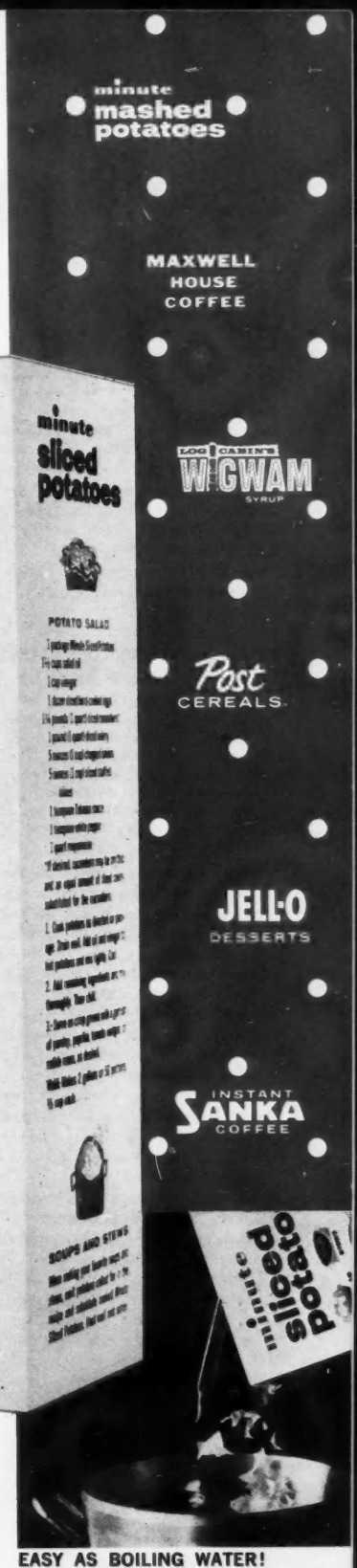

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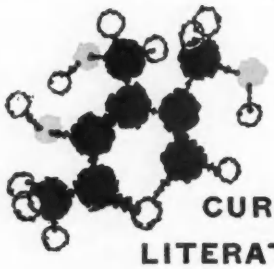

CURRENT LITERATURE

Contributed by Janette C. Carlsen, The Johns Hopkins Hospital, Baltimore; Clara Karl, University of Chicago, Clinics; Carmen Esther Rivera, Sister Marie Stephens, and Luise M. Weber, Dietetic Interns, VA Center, Los Angeles; Elizabeth H. Tuft, Chicago Wesley Memorial Hospital; and the Journal staff.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES

Vol. 237, June, 1959

*Renal function in liver disease and malnutrition. I. Duque, I. Jimenez, and G. Latorre.—p. 722.

*Inhibition of lipid mobilization of surgical stress by partially depolymerized hyaluronic acid. C. J. D. Zarafonetis, J. Seifter, D. Baeder, J. P. Kalas, and W. Y. M. Chang.—p. 771.

Liver Disease and Malnutrition. There is evidence of disturbances of renal function in patients with liver diseases and malnutrition, though the interpretation and correlation of the alterations are difficult, owing to the many physiologic effects that might contribute to the functional impairment. In this study, thirty-seven renal clearance measurements were performed on patients with liver diseases and malnutrition. Most of the patients presented disturbances of renal functional tests, essentially characterized by a high glomerular filtration rate, renal plasma flow, and filtration fraction. The modifications observed are related to hypoproteinemia, hypoalbuminemia, and a depression of the endocrine metabolism.

Lipid Mobilization in Surgical Stress. It has been demonstrated that lipid mobilization occurs in patients as a consequence of surgical stress. Moreover, evidence indicates that this effect is mediated through a physiologic mechanism for the acute mobilization of lipids to the liver. The elements of the process may be summarized as follows: In response to caloric requirements induced by the stress of surgery, lipid mobilizer hormone (LM) is released from the posterior pituitary gland into the circulation. LM then causes mobilization of triglycerides from the omentum into the portal circulation. In this study, a partially depolymerized hyaluronic acid (PDHA) was administered orally. Although increased amounts of lipid mobilizer hormone (LM) were released into the blood of all patients during surgery, lipid mobilization from the omental depot did not follow. PDHA, therefore, appeared to block the effect of LM at the omentum. No untoward effects occurred.

THE AMERICAN JOURNAL OF MEDICINE

Vol. 26, May, 1959

*On the nature of the metabolic defect(s) in diabetes. J. B. Field.—p. 662.

The action of insulin on the transport of glucose through the cell membrane. C. R. Park, D. Reinwein, M. J. Henderson, E. Cadenas, and H. E. Morgan.—p. 674.

*Inter-relationships of glucose and lipid metabolism. M. D. Siperstein.—p. 685.

Some aspects of the glucagon problem. J. Berthet.—p. 703.

Galactose metabolism and galactosemia. K. J. Isselbacher.—p. 715.

*Pentose metabolism and pentosuria. O. Touster.—p. 724.

*Biosynthesis of L-ascorbic acid; basic defect in scurvy. J. J. Burns.—p. 740.

Mucopolysaccharide metabolism. S. Roseman.—p. 749.

The Metabolic Defect in Diabetes. The metabolic abnormality which occurs in human diabetic subjects is quite complex and incompletely elucidated. There does not appear to be any real animal counterpart to the various clinical types of diabetes in man. There is evidence for at least two separate types of diabetes in man, although these distinctions are not always absolute. The juvenile diabetic subject appears to suffer from a primary failure of the pancreas to produce insulin, while the mild, obese adult diabetic patient gives evidence of some pancreatic function. The impaired ability of the diabetic subject to synthesize fatty acids does not appear to be a primary metabolic defect but rather to be dependent on the decreased availability of reduced pyridine nucleotides consequent to the reduction in glucose utilization. The defects in protein synthesis and the Krebs tricarboxylic acid cycle probably are also secondary to the primary failure in glucose utilization, although experimental evidence is not a conclusive fact as in the case of fat synthesis.

Relationships of Glucose and Lipids. It is becoming increasingly apparent that fatty acid synthesis and oxidation, cholesterol synthesis, and ketone body accumulation are all in part controlled by the rate at which glucose is broken down within the cell. It has been emphasized that glucose, in addition to serving the vital function of supplying substrate for the operation of Krebs cycle, acts as a generating system for the reduced pyridine nucleotides, and that it is, through these coenzymes, and in particular 6-phosphogluconic dehydrogenase (TPNH), that glycolysis may exert its regulatory influence on lipid metabolism.

Pentose Metabolism and Pentosuria. The pentose phosphate pathway (6-phosphogluconate oxidation pathway) is the source of tissue D-ribose and perhaps D-2-deoxyribose as well. In certain tissues, it also contributes to the net oxidation of glucose and probably supplies reduced triphosphopyridine nucleotide for biosynthetic reactions. It can be stated that essential pentosuria is a harmless biochemical anomaly linked to a rare recessive gene which is virtually restricted to individuals of Jewish origin. The exact nature of the defect has not been clearly determined.

Biosynthesis of L-Ascorbic Acid. There are marked differences in the metabolism of L-ascorbic acid in man and in the guinea pig, two species that require L-ascorbic acid. L-ascorbic acid is metabolized much more slowly in man, and this difference can explain why a much longer time is needed for scurvy to develop in man on an ascorbic acid-deficient diet. Studies on the biosynthesis of L-ascorbic acid have played an important role in uncovering a new route of glucose metabolism in animals, the glucuronic acid pathway. According to this scheme, D-glucose is metabolized via D-glucuronic acid, L-gulonic acid, L-xylulose, D-xylulose, and the pentose phosphate cycle. It has been observed that various drugs, possessing completely unrelated and pharmacologic properties, markedly increase the amount of glucose metabolized via this pathway. This may represent a new adaptive response on the part of the body to foreign compounds.

AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY

Vol. 77, June, 1959

*Pregnancy in sickle cell anemia, sickle cell-hemoglobin C disease, and variants thereof. E. M. Curtis.—p. 1312.

Sickle Cell Anemia in Pregnancy. Anemia has long been recognized as an important factor in pregnancy, but in the past fifty years a unique form of anemia associated with sickling of red blood cells in people of Negroid background has developed. The triad of anemia, bone pain, and pulmonary infarction emerges as the most common sequence of complications in pregnant patients with sickle cell-hemoglobin C disease. Similar events are frequent in sickle cell anemia but begin early in life and recur until death—apparently made no worse by pregnancy. Antenatal care includes dietary supplementation, antibiotics when infection is present, and whole blood transfusions.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 49, June, 1959

*Are you getting the most environmental health service out of the tax dollar? IV. Self-inspection. K. G. Vester and J. W. R. Norton.—p. 744.

Self-Inspection. Public food service and public school self-inspection programs in Rocky Mount, North Carolina, have increased sanitation awareness of individuals dispensing food service, of public school students, and of the community. Self-inspection is a democratic approach to better living,

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orange juice
capably supplies
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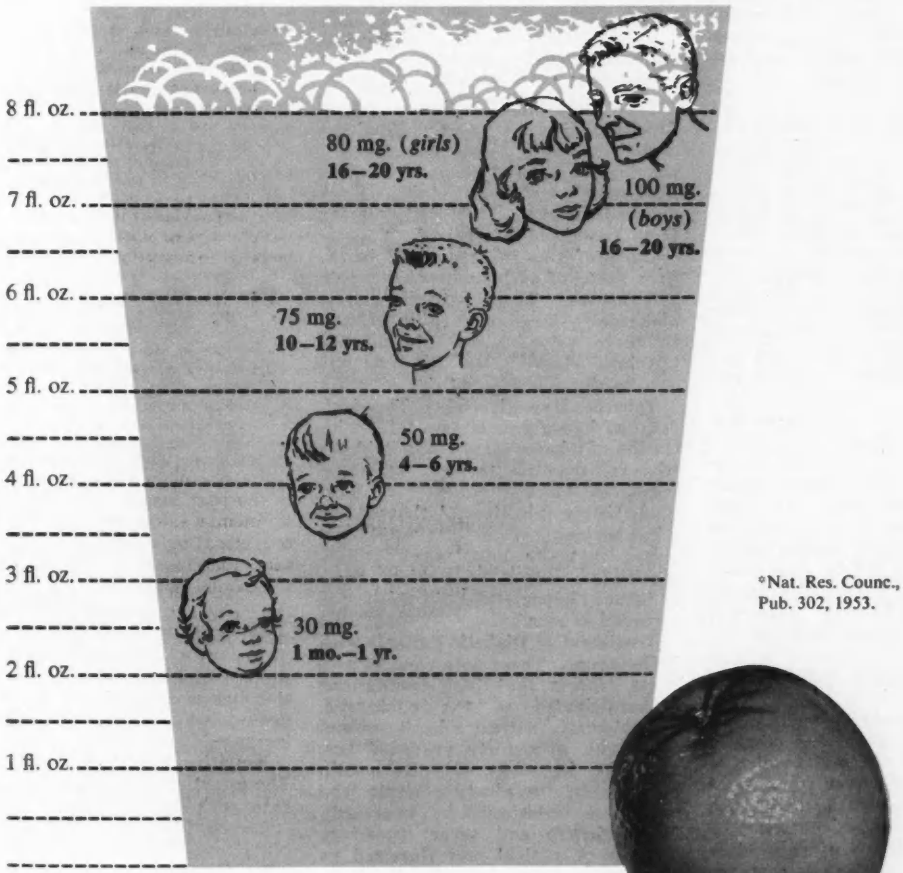

*Nat. Res. Counc., Pub. 302, 1953.

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a "grass roots" health education program designed to benefit everyone. Every restaurant in Rocky Mount, cooperated when self-inspection was introduced by the local health department in the latter part of 1950. In sixty establishments, 500 workers were allotted one inspection per month, totaling 1500 industry-made inspections per quarter. Three specific steps were taken to launch this program: (a) management interest was aroused; (b) food-handler interest was cultivated; and (c) public interest was utilized to give the program continued momentum. Managers and employees, the local press, civic groups, and the local government all endorsed the self-inspection plan. The public school in Rocky Mount began its inspection program at the beginning of the 1950-51 school year. Replicas of the self-inspections reports are included. This self-inspection program has proved to be an effective means of obtaining better knowledge, attitudes, practices, facilities, and responsibility for environmental health work.

THE AMERICAN JOURNAL OF SURGERY

Vol. 97, June, 1959

*Observations on the surgical treatment of peptic ulcer. A six-year review of 101 male patients. W. S. Cornell.—p. 709.

*Postoperative complications in the elderly surgical patient. T. J. Klug and R. C. McPherson.—p. 713.

*Congenital esophageal stenosis. Pathologic studies following resection. K. B. Bonilla and W. F. Bowers.—p. 772.

Surgical Treatment of Peptic Ulcer. Clinical records of 101 patients were reviewed, and information was tabulated in thirteen different categories. In addition, answers to a questionnaire concerning the postoperative period sent to each patient were tabulated. Sixty-seven per cent either maintained or increased their weight after gastrectomy; 13 per cent complained of mild symptoms of the dumping syndrome; and 37 per cent had vomiting to a mild degree. The average duration of preoperative symptoms was about eight years. Some patients had had numerous hospitalizations; in a sizeable number, there were implications that they did not stay on their diet and/or were addicted to alcohol and smoked. Eighty-seven per cent of the patients were satisfied with the results of the operation, but only 54 per cent were relieved of pain (this must be attributed to lack of cooperation on the diet).

Surgical Complications. This report is primarily concerned with complications following major operations in elderly patients. It was noted that extreme obesity was associated with a higher rate of complications while those who were moderately obese had no increase in complications over patients of normal weight. Gastrointestinal disorders were among the most frequently occurring complications in the elderly.

Esophageal Stenosis. Common symptoms of congenital esophageal stenosis include passive regurgitation of ingested material with a history of repeated infections of the respiratory tract and poor weight gain. One indication for surgery is poor weight gain or malnutrition. Gastrostomy should be used for feeding purposes during the immediate postoperative period. A barium test meal may be given on the tenth day; if the anastomotic line is of sufficient caliber, oral feedings may be started. The child should be placed in a semi-upright position during feeding to help with gravity flow to the esophagus and stomach.

ANNALS OF INTERNAL MEDICINE

Vol. 50, May, 1959

*Zinc metabolism in hepatic dysfunction. B. L. Vallee, W. E. C. Wacker, A. F. Bartholomay, and F. L. Hoch.—p. 1077.

*Tobacco hypoglycemia. M. G. Berry.—p. 1149.

Vol. 50, June, 1959

*The results of the treatment with tolbutamide of 200 diabetic patients: A discussion of secondary failure. J. M. Moss, D. E. DeLawter, and J. J. Canary—p. 1407.

Zinc Metabolism in Hepatic Dysfunction. Zinc is present in all living organisms and is essential as a nutrient for plants and animals. Marked abnormalities of zinc metabolism are demonstrated in patients suffering from postalcoholic cirrhosis. Concentrations of zinc in serum and in the liver tissue of such persons are markedly lowered. These patients excrete abnormally large quantities of zinc in their urine, except during the terminal stage when they excrete abnormally small quantities.

Tobacco Hypoglycemia. The incidence of hypoglycemia associated with the use of tobacco occurs in individuals who are sensitive to some substance found in tobacco smoke, the most likely being nicotine. Although the great majority of patients with functional hypoglycemia are women, twenty-two out of twenty-four cases of tobacco hypoglycemia in this series occurred in men.

Treatment of Diabetic Patients with Tolbutamide. These data confirm previous reports that best results can be anticipated in the nonketotic, asymptomatic patient who is normal in weight, over forty years of age, and takes less than 40 units insulin per day. Of the ninety patients who met these criteria, there were only four primary and seven secondary failures. A patient was classified as a primary failure if hyperglycemia was not initially controlled by the drug. A patient was considered a secondary failure if, after an initial period of good response, he developed persistent hyperglycemia unresponsive to an increased dose. Of the two hundred patients receiving the drug, 49 per cent obtained a good or excellent result.

ARCHIVES OF DERMATOLOGY

Vol. 79, June, 1959

*Unsaturated fatty acids in acne. W. R. Hubler.—p. 644.

Unsaturated Fatty Acids in Acne. Long-continued, low-fat diets for acne often cause weight and energy loss and resistance to infection may be lowered. In this study unsaturated fatty acids, in the form of corn oil in place of animal and hydrogenated fats, made unpleasant low-fat diets more palatable, without reducing their effectiveness. Weight loss and fatigue were prevented. Even patients who suffered from acne in its worst form improved with remarkable rapidity with oral use of corn oil. It was also found that ingestion of corn oil did not influence the normally low cholesterol levels of the teen-agers.

THE BRITISH JOURNAL OF NUTRITION

Vol. 13, No. 2, 1959

*Biological value of herring-meal protein. Urinary nitrogen excretion in relation to protein content of diet and food intake. L. R. Njaa.—p. 142.

*The nutritive value of bread protein as influenced by the level of protein intake, the level of supplementation with L-lysine and L-threonine, and the addition of egg and milk proteins. J. B. Hutchinson, T. Moran, and J. Pace.—p. 151.

The use of *Dolichos lablab* and *Lathyrus sativus* in the making of *taamiah* (bean cakes) in Egypt. S. R. Morcos and A. M. Boctor.—p. 163.

*Diet in pregnancy. II. Assessment of the nutritive value of diets, especially in relation to differences between social classes. A. M. Thomson.—p. 190.

*The metabolism of nitrogen, calcium and phosphorus in undernourished children. V. The effect of partial or complete replacement of rice in poor vegetarian diets by ragi *(Eleusine coracana)* on the metabolism of nitrogen, calcium and phosphorus. K. Joseph, P. P. Kurien, M. Swaminathan, and V. Subrahmanyan.—p. 213.

*Serum-cholesterol levels and atherosclerosis: effects of composition of diet and tri-iodothyronine on the rat. W. F. J. Cuthbertson, P. V. Elcoate, D. M. Ireland, D. C. B. Mills, and P. Shearley.—p. 227.

Herring-Meal Protein. Relationships between biologic value of a herring-meal protein and the food intake or the dietary protein concentration were studied in experiments with young rats. The utilization of this protein was lowered when its level in the diet was increased, but was improved when the food intake was increased.

Nutritive Value of Bread Protein. The growth rate and protein efficiency ratio with bread protein (13 per cent) supplemented with L-lysine (0.5 per cent) and L-threonine (0.2 per cent) were compared with those observed, at the same protein level, with casein, skim milk powder, whole egg protein, and bread in which half the protein was supplemented by the three latter proteins. The bread supplemented with the two amino acids was about the same as casein, bread-casein, and bread-skim-milk. The beneficial effect of supplementing bread with the above mentioned amounts of L-lysine and L-threonine is stressed.

Diet in Pregnancy. This paper is the second in a series on diet in pregnancy and considers the adequacy of

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diets, especially in relation to social classes. The diets of these primigravidae were qualitatively adequate. Part of the difference in the mean caloric intakes of subjects in the three social classes was accounted for by differences of mean body size. When these differences of mean caloric intake are allowed for, the social-class gradient in the intakes of several nutrients disappears or is reversed. Many subjects took less calcium than the estimated requirement, but no immediately deleterious effects were expected.

Metabolism of Undernourished Children. The effect of partial or complete replacement of rice in poor vegetarian diets by ragi, a cereal grain rich in calcium, was observed on the metabolism of nitrogen, calcium, and phosphorus in Indian children. All subjects were in positive nitrogen balance, positive calcium balance, and positive phosphorus balance. The calcium retention on the diets containing ragi was significantly higher than on the rice diet.

Serum Cholesterol and Atherosclerosis. The effects of the composition of diet and tri-iodothyronine on serum cholesterol levels in the rat were observed. The addition of cholesterol to the diet increased serum cholesterol and liver cholesterol concentrations. Cholic acid and choline chloride produced maximum concentrations. Hydrogenated arachis oil was more effective than plain arachis oil in producing hypercholesterolemia, and arachis oil was more effective than maize oil. There were some differences of serum cholesterol concentration depending on the sex and age of the rats. Tri-iodothyronine in the diet partly prevented an increase in serum cholesterol concentration and partly prevented the development of sudanophilic lesions.

THE CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 80, June 15, 1959

*Scurvy and its prevention by vitamin C fortified evaporated milk. D. Grewar.—p. 977.

Scurvy and Its Prevention. Overt infantile scurvy is endemic in several areas of Canada. It is notable that following a previous report of thirty-three cases at the Children's Hospital, Winnipeg, from 1953-1956 no further cases appeared until November 1959. Since then, four more cases have been admitted. It is suggested that many cases of scurvy in both overt and subclinical forms are missed. A clinical experiment is described which demonstrates the efficacy and practicability of ascorbic acid-fortified evaporated milk as an anti-scorbutic. Three infants with overt scurvy recovered promptly when such a product was used to provide their only source of ascorbic acid. The fortification of evaporated milk with ascorbic acid as standard practice is advocated to prevent infantile scurvy.

FOOD RESEARCH

Vol. 24, May-June, 1959

*The identity of yeasts in the surface flora of packaged frankfurters. S. D. Drake, J. B. Evans, and C. F. Niven, Jr.—p. 243.

*Effect of antibiotics on the thermal death rate of spores of food spoilage organisms. C. B. Denny and C. W. Bohrer.—p. 247.

*Acceptance measurement of unusual foods. R. W. Seaton and B. W. Gardner.—p. 271.

*Interaction of sucrose and calcium cyclamate on perceived intensity of sweetness. J. Kamen.—p. 279.

Surface Flora of Packaged Frankfurters. The identity of yeasts in the surface flora of packaged frankfurters was investigated. Twenty-nine strains were identified and are discussed.

Effect of Antibiotics on Spores. A series of experiments were conducted to compare the thermal death rate of spores in the presence and absence of several antibiotics. The antibiotics did not affect the thermal death rate of all the spores to a significant degree.

Acceptance Measurement of Unusual Foods. The problem of evaluation of unusual foods is made additionally complex by the tendency of subjects to reject such products merely on the basis of strangeness. If strangeness of unusual samples were decreased through provision of a utilitarian basis for judgment and in a form or fashion in which their novel qualities would be least apparent, negativity of acceptance ratings might be reduced.

Sucrose and Calcium Cyclamate. Pure solutions of two sweetening agents, calcium cyclamate and sucrose, and mixtures of these solutions were rated for intensity of sweetness. At the highest and lowest solution concentrations, the perceived intensities of the mixtures did not depart markedly from the perceived intensities of the average of the pure solutions comprising the mixtures. At moderate solution concentrations the perceived intensities of the mixtures were significantly higher than the intensities of the pure solutions.

FOOD TECHNOLOGY

Vol. 13, June, 1959

*Integration of organized food technology into a system for Maine sardine production control. B. S. Clark.—p. 289.

*Methods of detection and effect on freezing on the microflora of chicken pies. M. J. Fanelli and J. C. Ayres.—p. 294.

*Consumer preference of sweetness in sirup packed red sour pitted Montmorency cherries. K. G. Weckel, P. Buck, W. Beyer, and J. Birdsall.—p. 300.

*The use of isolated soybean protein for nonmeat, simulated sausage products frankfurter and bologna types. S. S. Frank and S. J. Circle.—p. 307.

*Effect of tocopherol supplementation of swine rations on the storage life of frozen pork. M. V. Zaehringer, S. V. Bring, C. A. Rickard, and W. P. Lehrer, Jr.—p. 313.

*Effect of freezer storage and variations in preparation on bacterial count, palatability and thiamine content of ham loaf, Italian rice, and chicken. L. C. West, M. C. Titus, and F. O. Van Duyne.—p. 323.

*Visual and eating preferences of consumer household panel for beef from animals of different age. M. Dunsing.—p. 332.

*Differences in eating quality factors of beef from 18- and 30-month steers. M. Simone, F. Carroll, and C. O. Chichester.—p. 337.

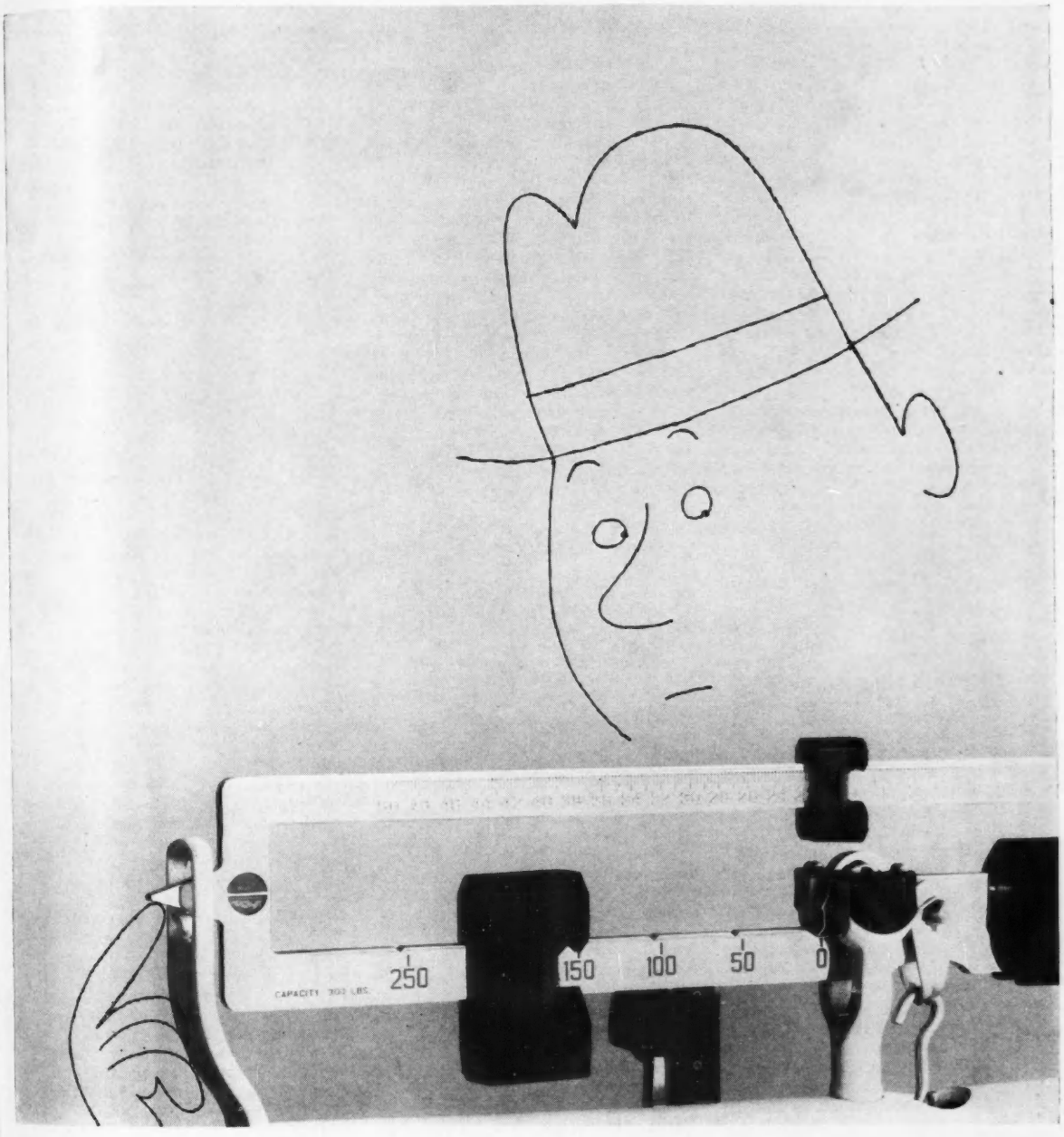
Maine Sardine Production. The research and quality control program of the Maine sardine industry is described. Legislative action established the Marine Sardine Council and also provided a per-case tax on all canners to finance the project. A grading procedure to measure the quality of the product was established. Loss of quality was traced to protein loss caused by chemical changes in the flesh. By reducing the brine storage time and holding the storage tanks at 45°F. or lower, maximum quality was attained.

Microflora in Frozen Chicken Pies. Incidence and kinds of microorganisms isolated from unfrozen and frozen commercially prepared chicken pies were investigated. The effect of freezing on the incidence of microorganisms was determined. Significant differences in numbers of organisms of all types recovered from samples obtained from different sources were observed. Total organisms in chicken pot pies were reduced by blast freezing. Freezing also reduced the incidence of fecal streptococci, staphylococci, coliforms, and yeasts and molds. Numbers of organisms growing anaerobically were not affected by freezing.

Preferences for Sweetness in Red Sour Pitted Montmorency Cherries. Canned red sour pitted Montmorency cherries were prepared with various levels of sugar. Physical properties of the cherries were measured and preference values obtained. It can be concluded that: (a) the best level of sugar for cherries to be processed for dessert uses lies between 50 and 60 per cent input sirup; (b) this level is equivalent to soluble-solids-to-acid ratios of 35 to 42; (c) at this level, the redness of the cherries is at its maximum. The high degree of preference at all levels of sugar suggests that cherries packed in sugar sirup would meet with considerable acceptance as dessert fruit.

Soybean Protein for Non-Meat Simulated Frankfurter and Bologna. A process has been developed for using edible isolated soybean protein as the sole protein source in all-vegetable products closely simulating frankfurter- and bologna-type sausages in appearance, flavor, texture, nutritional value, and other properties. Bland soy protein isolate is a stable dry granular material which can be stored indefinitely. In processing into frankfurter-type products, ice and curing are unnecessary; smoking is optional; sanitary practice is simplified; and the process can be easily controlled to produce a uniform product with a composition chosen within rather wide limits. Equipment required is found in most sausage plants and can be used with only a few alterations.

Effect on Frozen Pork of Tocopherol in Swine Rations. Chops from swine



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fed either animal or plant protein, and 0, 6, or 12 gm. vitamin E feed supplement for two, four, or six weeks, were analyzed fresh and after three, six, nine, and twelve months' frozen storage. Feeding 12 gm. supplement was more effective than 6 gm., and a six-week period was more effective than either a four- or a two-week period in retarding peroxide development. Significant decreases in palatability were evident after six months' frozen storage, but significant differences due to source of protein, period of supplementation, or amount of supplement were not demonstrated.

Bacterial Count, Palatability, and Thiamine of Frozen Ham Loaf, Italian Rice, and Chicken. Freshly prepared ham loaves, completely cooked Italian rice, and oven-fried chicken were considered more palatable than the samples prepared for serving after freezer storage. However, ham loaf mixture cooked after two months' frozen storage, partially or completely cooked Italian rice reheated after two months, and raw chicken breasts oven fried after two and four months were rated good. The precooked ham loaves and chicken were inferior in palatability to the samples frozen raw. No time was saved by precooking these products. The degree of doneness to which the rice in Italian rice was cooked had little effect on palatability after frozen storage. Increasing storage time from two to four months decreased the total scores of all three products but differences were significant in only half the cases. Low plate counts were obtained for all cooked samples, whether freshly prepared or cooked or reheated after freezer storage. Apparently, the products present no special bacteriologic problems if satisfactory ingredients and procedures are used. Thiamine content and retention, similar to those in the freshly prepared products, were found in the pre- or postcooked samples after two months' storage.

Preferences for Beef from Animals of Different Age. Preferences for beef of different carcass age and grade were obtained from a consumer panel. Preferences were significantly related to carcass age but not to grade. Eating preferences consistently favored the younger carcass steaks, and these preferences were much more pronounced for steaks from the sirloin than from the short loin cut. Visual preferences differed by wholesale cut; in general, older carcass steaks were preferred for the short loin cut and younger carcass steaks for the sirloin cut. It would appear either that the visual characteristics of marbling and color are inadequate to indicate desirable eating qualities or that panel members, when selecting steaks, are unable to judge the extent to which these two characteristics are present. Panelists having an over-all preference for the younger carcass steaks indicated a pronounced preference for the tenderness factor; those having an eating preference for the older carcass steaks indicated stronger preferences for taste and juiciness. Results suggest that panel members differed considerably in the relative importance which they attached to the specific factors in terms of providing eating satisfaction.

Eating Quality of Beef. Panel evaluation of tenderness, juiciness, and flavor factors in roast beef from eighteen- and thirty-month-old steers showed a significant effect of the age difference on the tenderness factor only. USDA grade variations within and between the two groups were significantly effective in the panel's scoring of Choice grade cuts as higher in tenderness, juiciness, and flavor as compared with Good grade carcasses. Anterior location of the *semimembranosus, adductor,* and *longissimus dorsi* muscles resulted in higher quality levels of the factors evaluated than did posterior locations. The older and Choice grade carcasses were darker or redder than the younger and Good grade carcasses.

GASTROENTEROLOGY

Vol. 36, June, 1959

*Radioactive fat absorption and clinical response of sprue to steroid therapy. Report of three unusual cases. C. H. Brown, O. Glasser, and E. J. Kurt.—p. 760.

*Studies on iron absorption following partial gastrectomy. W. Zingg, P. T. Green, and E. J. Thomas.—p. 806.

Clinical Response of Sprue to Steroid Therapy. Nontropical sprue is difficult to diagnose. The diagnosis must be made by the exclusion of other causes of malabsorption. Many patients thought to have sprue actually have some other disease causing a malabsorption syndrome. In this paper three unusual cases of sprue are presented. None of the three patients responded clinically to standard treatment, including the gluten-free diet and vitamin B_{12} given intramuscularly, but did respond to steroid therapy. Repetition of radio-active fat studies after steroid therapy showed great improvement in fat absorption, paralleling the clinical response. Steroid therapy would seem indicated for patients with sprue who do not respond to other treatment.

Iron Absorption after Partial Gastrectomy. Previous studies in patients with partial gastrectomy indicate that hypochromic anemia of the iron deficiency type frequently appear some months or years after the initial surgery. The iron deficiency may be caused by an insufficient absorption or by an increased loss of iron. In this study, the hemoglobin and the change in serum iron following administration of an oral test dose of ferrous gluconate have been determined in: (a) group patients who underwent partial gastrectomy, (b) ulcer patients who did not undergo operations, (c) patients with frank iron deficiency anemia, and (d) a control group. Lower hemoglobin and higher iron absorption values were found in the gastrectomy group. In the anemia group, an increase in iron absorption of similar magnitude to that of the gastrectomy group was found, whereas the mean hemoglobin was significantly lower than in the gastrectomy group. It is concluded that the gastrectomy patients are able to absorb orally administered iron salts. The development of iron deficiency following partial gastrectomy may be attributed to a diminished utilization of organically bound iron or to occult blood losses.

GERIATRICS

Vol. 14, June, 1959

*Vitamin B_{12} levels in senile dementia and confusional states. H. Droller and J. A. Dossett.—p. 367.

*Taste sensitivity in aging persons. E. Byrd and S. Gertman.—p. 381.

Vitamin B_{12} in Senile Dementia. The serum vitamin B_{12} levels of a series of geriatric patients with dementia or confusional states compared with that of normal elderly people of similar age. The control group provided data for comparison as regards to age, diet, and general condition. Patients with pernicious anemia and subacute combined degeneration acted as a "negative" control group. The senile dementia patients had lower vitamin B_{12} levels than did normal persons of the same age. In 225 cases, (average age was forty-two years) the vitamin B_{12} level showed no variation with advancing age. No correlation between weight and the mental state of the subject was found. No faulty absorption of vitamin B_{12} was demonstrated, nor any data on possible detoxication of cyanide. Confused persons had a larger proportion of intermediate values where low and intermediate values could not be obtained in normal old people.

Taste Sensitivity in Aging Persons. Three groups of twenty persons—18 to 25, 60 to 70, and 80 to 90 years of age—were compared for their sensitivity to the four basic taste qualities. No differences in sensitivity were found between the sides of the tongue in any of the subjects in the two younger groups. Except for a few cases of severe taste impairment, older persons did not differ from younger ones. Anatomical changes did not appear to account for many food and taste complaints common in older persons. The authors conclude that it is probable that food complaints found frequently among the aged are based on sensory impairment of taste.

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

Vol. 7, June, 1959

*Flavor changes of some fruits and vegetables treated with pesticides. M. M. Hard and E. Ross.—p. 434.

*The mechanism of corrosion of tin plate by various food products. R. P. Frankenthal, P. R. Carter, and A. N. Laubscher.—p. 441.

Pesticides and Flavor Changes. Fresh and processed fruits and vegetables were treated with pesticides.

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Effects on flavor were analyzed by the triangular method of comparison, and flavor evaluations of a variety of products treated with several different pesticides are reported. Different products reacted differently to a given insecticide.

Corrosion in Food Containers. The corrosion mechanism of tin plate under conditions duplicating normal canned-food packs was studied. In grapefruit and tomato juice, the dissolution of the tin coating is accompanied by the evolution of hydrogen; in prunes, hydrogen did not appear to be evolved when the tin dissolved, but only when the steel base was attacked. In prunes, all tin plates detinned at the same rate, but in grapefruit and tomato juice the rate of detinning was not the same for different types of tin plate. Electrochemical data indicated the presence of depolarizers in prunes, but not in grapefruit juice, a fact that explains the different corrosion mechanisms in the various food products.

JOURNAL OF THE AMERICAN GERIATRICS SOCIETY

Vol. 7, April, 1959

*Serum lipid levels in geriatric patients treated with a dietary supplement of unsaturated fatty acids. L. E. Hollister and F. S. Glazener.—p. 327.

*Cooking skills of geriatric patients. R. Sommer.—p. 343.

Vol. 7, May, 1959

*Enzymatic factors in protein malnutrition of the geriatric patient. E. Settel.—p. 416.

Vol. 7, June, 1959

*Panel discussion on clinical nutrition and lipid metabolism.—p. 457.

Unsaturated Fatty Acids. The effects of two dietary supplements of vegetable fat were measured in geriatric patients maintained with a diet only slightly modified by the elimination of certain animal fats. Supplements used were 36 gm. soybean oil and 27 gm. linoleic acid. The results of lowering serum lipid levels with this approach were disappointing. Evidence so far indicates that at least half of all dietary fat must be in the form of unsaturated fatty acids before consistent and significant effects are obtained.

Cooking Skills of Geriatric Patients. This paper describes the manner in which a "cooking kitchen" was installed in a geriatrics ward. The areas where the greatest need for assistance existed were in the use of the newer appliances and the motivation for cooking. It is felt that cooking can do a great deal towards maintaining the self-respect of the patients.

Enzymatic Factors in Protein Malnutrition. This paper emphasizes the problem of pancreatic dysfunction and insufficiency in the aged. Protein malnutrition may be the most significant factor in the etiology of many chronic diseases. An adequate and qualitatively well balanced protein diet, as well as the enzymes for its proper digestion, is recommended.

Clinical Nutrition and Lipid Metabolism. This article is a report of a panel discussion on clinical nutrition and lipid metabolism conducted at a symposium on geriatric medicine. Part I covers caloric and protein requirements of the aged and a discussion on micronutrients. Part II presents various aspects of lipid metabolism including something of the property of lipids, and the conditions of hyperlipemia and hypercholesterolemia.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 170, June 6, 1959

*Radioisotopes in drinking water. Foreign Letters–United Kingdom.—p. 720.

Vol. 170, June 13, 1959

Cholesterol content of foods. Questions and Answers.—p. 890.

*Calcium and iodine intake. Questions and Answers.—p. 890.

Vol. 170, June 27, 1959

*Comparative effectiveness of phenylpropanolamine and dextro amphetamine on weight reduction. J. F. Fazekas, W. R. Ehrmantraut, K. D. Campbell, and M. C. Negron.—p. 1018.

*Diet in the management of peptic ulcer. Council on Foods and Nutrition. H. J. Shull.—p. 1068.

*Blood cholesterol levels. Foreign Letters–Canada.—p. 1100.

*Fatty acid, glyceride, and phospholipid levels after operation. Foreign Letters–Sweden. p. 1104.

Radioisotopes in Drinking Water. The fallout of radioactive strontium and radioactive cesium in rain has been measured for the last five years, but not much is known about its effects on the supplies of public drinking water. In Britain the mean level of strontium-90 in lake waters was equal to about 15 per cent of the strontium-90 content of rain water. River sources had about 10 per cent as much as rain water, and well waters less than 1 per cent. The highest level of radioactive cesium was in river water.

Calcium and Iodine Intake. Apparently, adaptation to wide ranges of calcium intake is possible without observable effects. The Recommended Dietary Allowance of the Food and Nutrition Board is 800 mg. According to the National Research Council, the average intake of iodine is about 150 mcg. per day. The fatal dose is usually 2 to 3 gm. Individually there may be great variations in iodine intake, but generally the thyroid is able to compensate for these changes and maintains a normal rate of secretion of thyroxine.

Weight Reduction. The comparative anorexigenic potencies of phenylpropanolamine and dextro-amphetamine were determined in a study of eighty-one obese mentally deficient patients, without dietary restrictions. The results failed to demonstrate significant weight reduction in patients receiving phenylpropanolamine, a common ingredient of weight-reducing drugs which are offered to the public without prescriptions. In the group receiving 5 mg. dextro-amphetamine three times a day, there was a statistically significant reduction of weight. Although these drugs are related chemically, the anorexigenic potency is not the same. In view of the many psychologic and physiologic factors involved, it is stressed that weight reduction should be supervised by physicians, particularly when drugs are used.

Diet and Peptic Ulcer. The use of diet as an important part of the therapeutic regimen for the ulcer patient is a deep-rooted practice. This article supports the fact that much of the rigid ritualism of the conventional dietary regimen for peptic ulcer is unnecessary. Factors favoring a liberal ulcer diet are discussed. A temperate and common sense approach to the dietary prescriptions should provide for the essential nutritional and acid-reducing features, without making the diet an end unto itself or the patient a dietary cripple.

Blood Cholesterol Levels. Unexpected findings in rabbits fed an unsaturated fatty acid preparation containing 90 to 95 per cent of linoleic acid were found. Not only did the free unsaturated fatty acids fail to prevent development of hyper-cholesteremia and atherosclerosis, but they also had a deleterious action in comparison with a control series receiving olive oil. Another group of Canadian investigators suggested that dietary cholesterol can affect plasma cholesterol levels in a highly significant manner in man. The response obtained depends on the nature of the fat with which the sterol is associated.

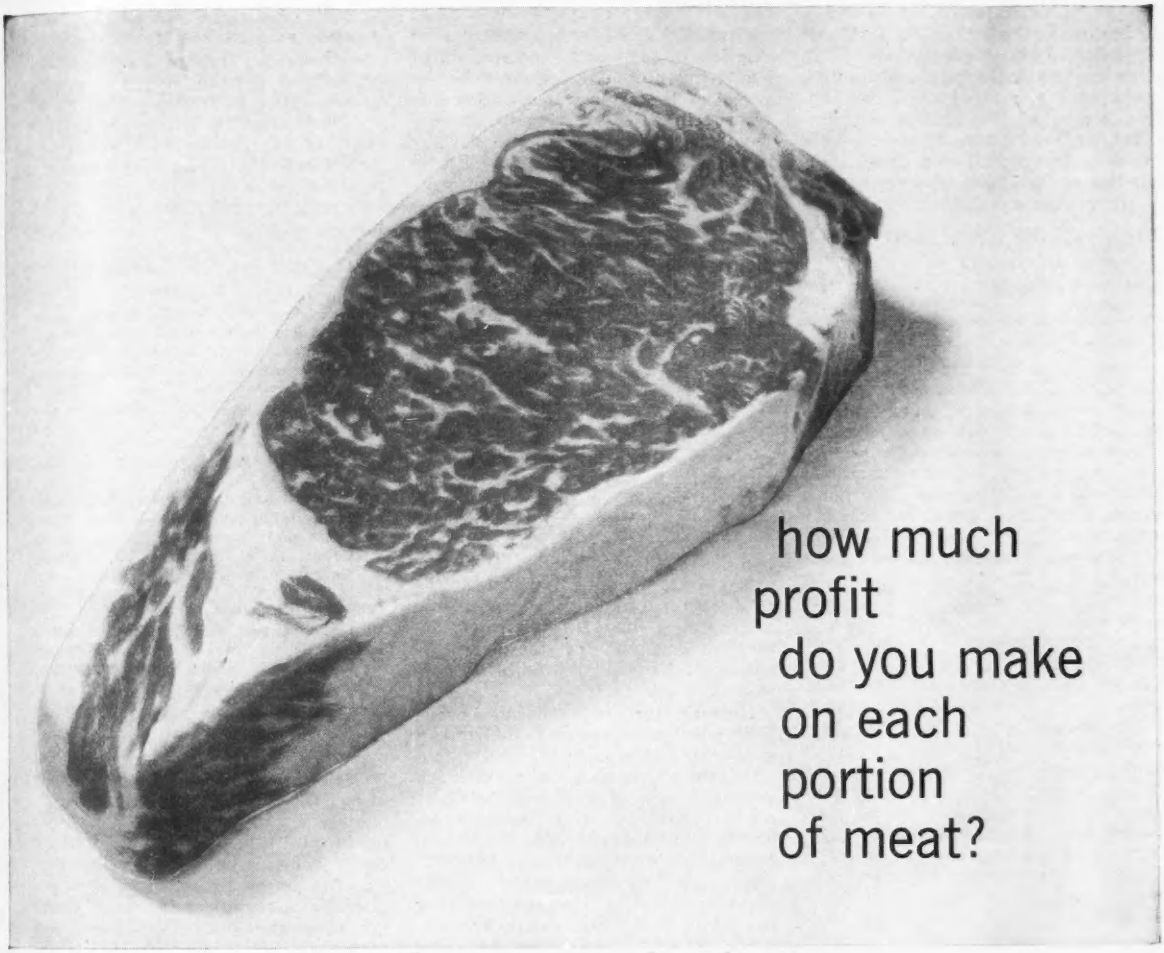
Fatty Acid, Glyceride, and Phospholipid Levels. Reports are given on the postoperative concentrations in plasma of unesterified fatty acids (UFA), glycerides, and phospholipids in twelve patients. There was an increased level of UFA and a decreased concentration of glycerides and phospholipids. It is felt that the increased level of UFA was an expression of an increased inflow from fat depots. The importance of UFA in plasma as a transport form of fat for metabolic demands is indicated. The author believes that the glyceride level in plasma was probably related to the metabolic state of the body and dependent on the carbohydrates available for combustion.

THE JOURNAL OF CLINICAL INVESTIGATION

Vol. 38, May, 1959

*Pyrimidine metabolism in man. I. The biosynthesis of orotic acid. L. H. Smith, Jr., and F. A. Baker.—p. 798.

Pyrimidine Metabolism in Man. Three enzymes leading to the formation of orotic acid—aspartate carbamyltransferase, dihydroorotase, and dihydroorotic dehydrogenase — were present in circulating human leukocytes. The intracellular locations and some of the biochemical characteristics of these enzymes were determined. Micro-assay procedures were developed which gave reproducible results for normal enzymatic activities of all three enzymes in sonicates of mature leukocytes and hemolysates of mature erthrocytes.



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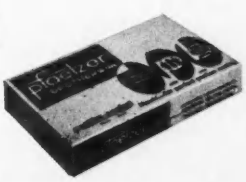

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JOURNAL OF HOME ECONOMICS

Vol. 51, June, 1959

*The home economist's contribution to food research. G. E. Vail.—p. 445.

*Techniques for electronic cooking research. H. J. Van Zante.—p. 454.

Home Economist's Contribution to Research. Today home economists are doing foods research along various lines. This work can be categorized into nine major areas of study: (a) food composition, (b) the functional properties of food materials, (c) home methods of food preservation, (d) home methods of food preparation, (e) methods of commercial food processing, (f) influence of growth and production factors on food quality and nutritive value, (g) influence of marketing practices on the quality of food reaching consumers, (h) food habits, food preferences, and food acceptability, and (i) methodology.

Electronic Cooking Research. This study investigates the electronic range in food research. Technical data, including voltage supply, a wiring diagram, and temperature measuring techniques, are presented. Agar cylinders heated a very short time in the electronic range were much more unevenly heated internally than were those heated in the conventional electric range for a longer time.

THE JOURNAL OF LABORATORY AND CLINICAL MEDICINE

Vol. 53, June, 1959

*Studies on blood lipids during exercise: I. Arterial and venous plasma concentrations of unesterified fatty acids. L. A. Carlson and B. Pernow.—p. 833.

*The effect of a high-sodium intake on the development of permanent nephrosclerotic hypertension. Effect of nephrosclerotic hypertension on the granularity of the juxtaglomerular cells. L. Tobian, J. Janecek, and A. Tomboulian.—p. 842.

*Human liver glycogen levels. J. B. Sokal and K. E. Gerszi.—p. 876.

*Riboflavin activity in normal and leukemic human leukocytes and nuclei.—M. D. Prager, M. Malicky, M. Goerner, and J. M. Hill.—p. 926.

Blood Lipids During Exercise. Different findings have shown that unesterified fatty acids (UFA) represent the blood lipid fraction which is primarily utilized and ready for metabolization in the tissues. In this study the effect of muscular work on UFA in man was investigated. Plasma concentration of unesterified fatty acids in the arterial blood and in the femoral veins was determined at rest and during exercise. There was no difference in extraction of UFA after fasting for 24 hr. During exercise, the arterial plasma concentrations were decreased. The exercising leg extracted unesterfied fatty acids from plasma. The findings are discussed in relation to the energy metabolism of exercising muscular lesions. The reversal of the arteriovenous UFA difference in a leg starting to exercise from the resting state gave further support to the theory that UFA is one of the major transportation forms of fat needed for the immediate energy metabolism.

Sodium Intake and Development of Hypertension. In this study, rats were made hypertensive by partial constriction of one renal artery. One group was given a 1 per cent solution of sodium chloride and the other received tap water. Both were observed for six months. The rats were observed again for six weeks when both groups drank tap water. The 1 per cent saline solution did not increase the incidence of hypertension. Hypertension of a moderate degree persisted in 32 per cent of rats that drank only 1 per cent saline solutions and persisted indefinitely in 43 per cent of rats drinking tap water. The rats with permanent nephrosclerotic hypertension had a significant decreased granulity of the juxtaglomerular cells compared with the normotensive groups.

Human Liver Glycogen Levels. Thirty-six determinations of human liver glycogen were made and a tentative normal range is suggested. An additional case of excessive liver glycogen depositions in diabetes is reported. Biopsies were made of patients with hepatic metastases. Patients' diets during the pre-operative period provided 1400 to 1900 calories per day with 125 to 200 gm. carbohydrate, 50 to 70 gm. protein, and 70 to 80 gm. fat. Comparisons of results showed that the human liver can deposit 3 to 4 per cent of liver glycogen during a period of 10 hr. or less. Values in the range of 3 to 10 per cent were usually found within the normal range following glucose feeding. Normal range after an overnight fast was 6 per cent. No correlation between liver glycogen levels and age or diagnosis was found. The authors conclude that the hepatic glycogen storage disease should be based on the characteristic metabolic and biochemical defects other than on the liver glycogen concentration.

Riboflavin Activity in Leukemic Cells. Findings of microbiologic measurement of riboflavin in isolated human leukocytes and their nuclei, and analysis of factors which might influence the vitamin are reported. The mean riboflavin content of the leukocytes of patients with lymphocytic leukemia was less than that found in normal or granulocytic leukemic individuals. The riboflavin levels of white blood cells were characteristic of the cell type rather than of the leukemic processes. There was no correlation between the maturation state of the leukocytes and its riboflavin content and between riboflavin level and whole blood riboflavin activity, fasting state, age, or sex. A close parallel was found between the riboflavin values in the white cells of normal persons and those with granulocytic leukemias. The nuclei of lymphocytic cells had a smaller quantity of riboflavin than granulocytic cells, but the major difference between the vitamin content of the two series of cells was in the cytoplasm.

THE JOURNAL OF NUTRITION

Vol. 68, June, 1959

*Egg protein as a source of the essential amino acids. Requirement for nitrogen balance in young adults studied at two levels of nitrogen intake. M. E. Swendseid, R. J. Feeley, C. L. Harris, and S. G. Tuttle.—p. 203.

*Bioassay of the nutritional quality of the protein of human and cow's milk by rat growth procedures. R. M. Tomarelli, N. Minnick, E. D'Amato, and F. W. Bernhart. —p. 265.

*The utilization of dietary protein and energy as affected by fat and carbohydrate. R. W. Swift, G. P. Barron, K. H. Fisher, R. L. Cowan, E. W. Hartsook, T. V. Hershberger, E. Keck, R. P. King, T. A. Long, and M. E. Berry.—p. 281.

*The effect of storage on the vitamin B_6 content of a packaged Army ration, with a note on the human requirement for the vitamin. R. S. Harding, I. C. Plough, and T. E. Friedemann.—p. 323.

Essential Amino Acids from Egg. Egg protein as the sole source of essential amino acids was evaluated by determining the minimum amount of egg necessary to maintain nitrogen balance in the presence of an adequate total nitrogen intake. In six of seven subjects, nitrogen equilibrium was attained when 100 gm. egg supplied the essential amino acids at 6.5 gm. total nitrogen intake. The range of requirements was from 80 to 120 gm. egg (10 to 15 gm. egg protein). At a 13-gm. total nitrogen intake, the range of requirements for nitrogen equilibrium was from 80 to 200 gm. egg. The six subjects who were studied at both levels of nitrogen intake showed no consistent variation in the requirement for egg and thus for essential amino acids when the dietary nitrogen was increased.

Human and Cow's Milk Protein. Biologic assays of the protein of human and cow's milk showed little difference in the nutritional value in experiments designed to reduce excessive amounts of dietary lactose. There was no difference of statistical significance in the nutritional indices of protein efficiency ratio, protein retention efficiency, net protein utilization, biologic value, true digestibility, and net protein utilization.

High- vs. Low-Fat Diets. Two diets furnishing equal amounts of protein and energy, but differing widely in fat content were compared as to daily nitrogen balance and heat production. One pair of subjects received the low-fat diet first, then the diet high in fat. The other subjects had the reverse order. The differences in total daily energy expenditures and nitrogen balances between the two diets were insignificant.

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Effect of Storage on Vitamin B_6. This study revealed that appreciable losses of vitamin B_6 may occur in packaged rations undergoing prolonged storage at high temperature. An Army C ration stored for twenty months at 34°F. contained an average of 2.76 mg. vitamin B_6 per ration. Other rations stored at 100°F. contained an average of 1.93 mg. This study also gives some evidence of the level of the human requirement of vitamin B_6. In this experiment, the minimum daily requirements of vitamin B_6 were between 1.93 and 2.76 mg.

THE JOURNAL OF PEDIATRICS

Vol. 54, June, 1959

*Lactic acid milk in the feeding of premature infants. S. Karelitz, N. B. Schell, and H. I. Goldman.—p. 756.

Lactic Acid Milk for Premature Infants. Forty-four premature infants comprised a study group. Birth weights ranged from 1417 to 1800 gm. The infants were placed in one of three feeding groups on a random-rotation basis: (a) the standard formula, composed of half skim cow's milk with added carbohydrate, which is high in protein, low in fat; (b) an evaporated milk, dextri-maltose formula; and (c) an experimental lactic acid and evaporated milk mixture. Newborn infants were fed nothing by mouth for 24 hr. or longer, as conditions warranted. Milk feedings were increased gradually, and by the tenth day, the infants received isocaloric feedings which averaged 114 calories in 143 ml. liquid per kilogram body weight per day. Infants receiving the lactic acid and evaporated milk mixture gained less weight, appeared pallid, and seemed discontented. These infants excreted about 1 gm. more fat daily than those on the skim-milk-carbohydrate formula and about the same as those on the evaporated milk and dextri-maltose formula. The loss of fat was not considered responsible for producing the poor results in the lactic acid-fed infants. The possibility that acidosis resulted from the lactic acid feeding was also explored; blood *p*H and carbon dioxide determinations demonstrated lowering of each.

THE LANCET

No. 7084, June 6, 1959

*Influence of myocardial infarction on plasma-lipoprotein concentration. C. Dodds and G. L. Mills.—p. 1160.

Lipoproteins and Myocardial Infarction. The lipoprotein patterns of healthy Englishmen and those with myocardial infarction have been compared. These measurements show that a myocardial infarction is itself associated with a pronounced lipoprotein abnormality which is manifest for at least two months after the attack. It seems, from the data available, that myocardial infarction in men younger than forty-five years is often preceded by detectable lipoprotein abnormalities which become more evident after the attack, whereas in the elderly the acute disease is more common in men with "normal" lipoprotein patterns. It may be concluded that the blood-lipoproteins are, in certain cases, concerned with the development of coronary artery disease and also that the effect of the infarct itself on the lipoprotein has, in many cases, been ignored.

NEW ENGLAND JOURNAL OF MEDICINE

Vol. 260, May 28, 1959

*Hypoglycemia complicating treatment of phenylketonuria with a phenylalanine-deficient diet: Report of two cases. P. R. Dodge, E. L. Mancall, J. D. Crawford, J. Knapp, and R. S. Paine.—p. 1104.

Vol. 260, June 18, 1959

*Serum globulin levels in whites and Negroes. H. Keltz and G. W. Comstock.—p. 1268.

Hypoglycemia and Phenylketonuria. Two phenylketonuric children in whom hypoglycemia developed during treatment with a phenylalanine-restricted diet are described. Refusal to take an adequate amount of an unpalatable diet over a period of weeks or months resulted in a state of under-nutrition accompanied by fatty metamorphosis of the liver. A relatively short period of fasting was responsible for severe hypoglycemia with convulsions and coma. Hypoglycemia may thus be considered a complication of the treatment.

Serum Globulin Levels. The levels of serum albumin and globulin of 197 normal people were determined as part of an epidemiologic study of sarcoidosis. Negroes had significantly higher globulin levels than white persons. The higher concentration of serum globulin among Negroes was not related to infection with syphilis or tuberculosis and may well be a racial characteristic.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 59, May 15, 1959

*Effect of dietary supplementation with L-lysine in poorly thriving infants. A. J. Vignec and M. Z. Gasparik.—p. 1998.

Vol. 59, June 1, 1959

*Patient selection for weight reduction. C. M. Young.—p. 2215.

Dietary Supplementation with L-Lysine. The use of supplemental L-lysine to promote better growth was studied in twenty-five poorly thriving, institutionalized babies. Their average age and body weight at the outset were 7.1 weeks and 8.3 lb., and their diet consisted chiefly of an evaporated milk and carbohydrate mixture calculated to provide 100 to 120 calories and 3.5 to 4.0 gm. protein per kilogram. Food consumption, as measured by the daily ingestion of formula, was uniformly adequate in both control and test periods. This suggests that the highly significant increase in rate of weight gain associated with supplementation resulted from an improved utilization of dietary proteins. The data indicate a cause-and-effect relation between the use of supplemental lysine and the significantly increased rate of weight gain in the test group of poorly thriving cases.

Patient Selection for Weight Reduction. Careful selection of patients for whom weight reduction is prescribed is the responsibility of the physician. Best successes may be expected when: (a) there is a high level of emotional adjustment, (b) patients are in the early stages of obesity, (c) obesity developed in adult life rather than in childhood, (d) there is no previous history of attempts at reducing with failure or with regaining of essentially all the weight lost, (e) the patient has a reason meaningful to himself for undertaking the struggle of reducing, and (f) weight reduction is a realistic goal to the patient, who is not nurturing a fantasy about the great advantages to be achieved by weight loss. When these conditions exist, results of therapy will be much more satisfying and patients will be spared needless guilt, frustration, and further anxiety.

NEW ZEALAND MEDICAL JOURNAL

Vol. 57, December, 1958

*Breast-feeding. H. Deem and M. McGeorge.—p. 539.

Breast-Feeding. Follow-up study of New Zealand mothers who breast fed their babies revealed that the amount of milk taken by the infant was related directly to his birth weight and to the amount of milk available in the breasts. Of these two factors, the latter was the most important. Of the factors leading to weaning, over-distention of the breasts was found to depend mainly on the volume of milk secreted and the elasticity of the breast tissue. Manual expression of the residual milk at the conclusion of each feeding, by insuring more adequate emptying of the breasts, prevented the development of excessive milk tension in most patients with elastic breast tissue. An easy introduction to breast-feeding during the first pregnancy is most important as an encouragement to its continuation in subsequent pregnancies.

NUTRITION ABSTRACTS & REVIEWS

Vol. 29, April, 1959

*The estimation of calcium requirement: A re-examination. I. Leitch and F. C. Aitken.—p. 393.

Calcium Requirement. This review is a re-examination of the requirement for calcium. Calcium requirement has two main components, one for growth and one for replacement of loss in turnover. It has been commonly thought that the requirement of children has a growth component only. It is argued here that there is also endogenous loss in children. Requirement for growth of the skeleton is estimated. Studies using radioactive calcium are briefly reviewed. Loss of endogenous calcium is discussed, and

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estimates are offered of the amounts lost at different ages. It is suggested that further metabolic research should aim, not at finding the maximum retention that can be induced in a given subject by any given diet, but at finding the levels of calcium in different diets that will supply a given required skeletal increment. Present recommendations of calcium allowances may exceed requirements.

NUTRITION REVIEWS

Vol. 17, June, 1959
*Current food trends. O. V. Wells.—p. 161.

Current Food Trends. The amount, composition, and distribution of a nation's food supplies are the basic determinants of the adequacy of its nutritional level. The Department of Agriculture has compiled data which are reported here. Per capita use of food (retail weight equivalent) by major food groups for three time periods is shown in Table 1. Table 2 translates the average per capita quantities of the various classes of foods in Table 1 into their nutritional equivalents. Table 3 summarizes the result of the 1955 Survey of Household Food Consumption in terms of average nutrient value of diets per person by income class. This study shows that much of the malnutrition which exists in the U. S. today is a matter of food choice or preference rather than an income problem.

PSYCHOSOMATIC MEDICINE

Vol. 21, May-June, 1959
*Personality factors and certain attitudes toward child rearing among parents of asthmatic children. G. T. Fitzelle.—p. 208.

Personality Factors and Asthmatic Children. Studies have shown that individuals suffering from bronchial asthma possess distinctive personality characteristics, including a disproportionately large number of neurotic symptoms. An investigation focusing on the parents of asthmatic children was devised in the hope that it would shed light upon the etiology of the character traits ascribed to the asthmatic person. The study demonstrated that the thesis "parents of asthmatic children may be set apart from the parents of other sick children" can be readily substantiated.

SCIENCE

Vol. 129, June 12, 1959
*Fat changes during adolescence. S. M. Garn and J. A. Haskell.—p. 1615.

Fat Changes During Adolescence. Lower thoracic fat, as measured on serial chest plates of 259 children in Ohio, increased in girls between ages six and a half and fourteen and a half years, and in boys between ages six and a half and eleven and a half years. No evidence for a marked loss of "baby" fat in adolescence, or for waves of fattening around the time of puberty was found.

SOUTHERN MEDICAL JOURNAL

Vol. 52, June, 1959
*The problem of food allergy. W. A. Howard. p. 747.

Food Allergy. In spite of its high incidence, food allergy remains an enigma. Its importance in allergic states must always be considered. The skin reactions to foods are notoriously inaccurate clinically, but are worth doing in most cases of suspected food allergy, as an aid in determining the dietary approach to be instituted. The final proof of allergy to foods is the repeated precipitation and relief of symptoms by controlled addition and withdrawal of individual foods to and from the diet. A somewhat different approach to the problem of manipulation is suggested in the use of the "rare food diet." The diet eliminates the foods which the patient eats daily and substitutes equally nutritious foods which are seldom eaten. The use of this list has proved particularly meritorious as a simple screening method in patients with allergic symptoms where food cannot be excluded as the precipitating or aggravating agent by the usual methods.

THE TOHOKU JOURNAL OF EXPERIMENTAL MEDICINE

Vol. 69, February 25, 1959
*Changes of blood ATP, inorganic phosphorus and blood sugar after injection of glucuronic acid in diabetics and nondiabetics. Y. Goto, Y. Ujiie, A. Takanami, A. Kuwano, and T. Uchiyama.—p. 137.

Changes in Blood after Glucuronic Acid. Previously it was shown that glucuronic acid augmented the curative effect of insulin in some diabetic patients. In this study, the blood ATP (adenosine triphosphate) was elevated distinctly after an initial decrease by an injection of sodium glucuronate. This injection caused a decrease in blood inorganic phosphorus and also a depression of blood sugar in diabetic patients as well as in nondiabetic patients.

ADULT LEADERSHIP

Vol. 9, June, 1959
*The effectiveness of decision-making groups. G. E. Swanson—p. 48.

Decision-Making Groups. The author presents a study of the effects of constitutional arrangements on group efficiency. He notes that the constitutional arrangements of the groups is an important factor, since they determine the way in which the group may operate. Constitutional arrangements are defined as, "The social definitions that state a group's sphere of competence and the proper procedures for making and executing decisions." The author states that, "Other things being equal, organizations are more effective if they operate in a manner consistent with the stable elements of their fundamental or constitutional structures. Such consistency facilitates commitment to policies and to the execution of policies." Parliamentarian organizations, participant-determining groups, and democratic centralism are a few common types of constitutions in human affairs discussed. A table is given to point up the conditions of group productivity and participant satisfaction.

AMERICAN RESTAURANT

Vol. 43, June, 1959
*Menu money-maker from appetizer to dessert . . . salads. T. Greer—p. 34.

Salad Magic. "The salad department should be second to none in the food service department, and a discreet operator will concentrate on it since no other items on the menu will give better returns in dollars and cents than well planned, appetizing salads." The author points out the importance of employing a competent supervisor in the salad department. There are four major types of salads which are classified according to their functions in the menu: appetizer salad, main course salad, accompaniment salad, and dessert salad. Slaws and garnishes also merit attention. Pointers on the purchasing and storage of salad ingredients and on the preparation of salad greens and vegetables are presented.

DINER DRIVE-IN

Vol. 18, June, 1959
*How to cook vegetables. D. E. Lundberg.—p. 31.

Vegetable Cooking. Opinions on how best to cook vegetables vary. Should the cover of the pot be on or off? Should sugar or soda be added? How much water should be used with what vegetables? Do frozen vegetables need to be thawed? These and other questions are answered in a photosequence based on research.

FAST FOOD MAGAZINE

Vol. 58, May, 1959
*Has a strange sickness hit our college education?—p. 53.

Ill-Fated Trend? Some pros and cons are presented on what some are calling a virus known as general education, said to be infecting some of our nation's best restaurant management schools. In a question-and-answer session with two professors at the Michigan State University Hotel and Restaurant School, some of the recent trends and aims of the curriculum were pointed out and their possible results.

FOOD ENGINEERING

Vol. 31, June, 1959
*Reveal ratings for flexibles for frozens.—p. 60.
*Freeze-drying looks up.—p. 78.

Flexible Frozen Food Packaging. It is well known that palatability and general acceptance of low-temperature products can be significantly affected by the type of packaging material used. The new data contained in this article give a handy guide for choosing the right low-temperature

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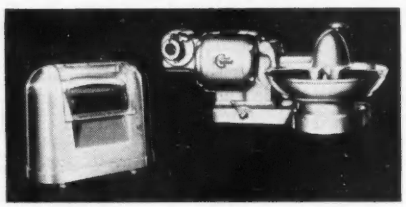

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packaging. The food items probed by a team of college researchers were: frozen strawberries, peas, asparagus, chow mein, chicken thighs, turkey fryer-roasters, ground pork and beef, white bread, sponge cake, and herring fillets. Packaging materials evaluated included polyethylene, poly-coated films, Cellophane, foil, and vinyls.

Freeze-Drying. As a commercial method of preservation, freeze-dehydration has lagged in comparison with other food processes. Relatively few products are dried by this technique, but four reasons are given in the article to indicate that there appears to be sufficient incentive to change the status quo. The technique now yields top-quality, space-saving products that don't require refrigeration and engineering studies point the way to solid savings.

FOOD SERVICE MAGAZINE

Vol. 21, June, 1959

*Doilies make the food look better. A Gale.—p. 42.

Enhancing Doilies. Lace paper doilies are growing in popularity as many dining rooms add "that extra touch" to plastic, glassware, and china service. A survey of fifty-four hotel restaurants showed that 92 per cent use doilies for one or more purposes from hors d'oeuvres to desserts. The lace paper doilie provides a low-cost, high quality "look" to food presentation. The author gives a checklist of items to which doilies may add showmanship to the simplest of foods.

HOSPITAL ADMINISTRATION

Vol. 4, Spring, 1959

*The organization as a social system. T. R. Brannen.—p. 19.

*Interrelationships in the hospital. H. Schoenfeld.—p. 26.

*The phenomena of informal organization. J. J. Preiss.—p. 35.

Administration in a Social System. "The welfare of society is a function not only of the availability of technology but of the efficiency with which it is used and the purposes to which it is applied." This responsibility is most often delegated to an administrator, whose primary function is to induce voluntary cooperation on the part of subordinates and associates. The author gives the following factors as the most important qualifications of an administrator: (a) an understanding of why persons are willing to contribute their efforts and (b) skill in obtaining cooperation from the members of an organization in working toward planned objectives. The worker's attitudes are primary in determining his effectiveness in the organization. "Employees cooperate with those from whom they receive cooperation." Administrators must be willing to help satisfy the employee's needs and they must know what the employee expects of the organization. To effectively administer, the workings and influence of the "informal organization" of groups of employees must be fully recognized. In discuss-

ing the "informal organization," the author states, "Administrators who do not recognize this fact and treat objects and relations solely in terms of concepts of efficiency are likely to encounter difficulty in obtaining employee cooperation."

Interrelationships in Administration. The task of the hospital administrator is a complex one. Administration involves leadership which is effective only when its wisdom (judgment and decision) is conveyed properly to all personnel in the organization structure. "The structure holds the key to the achievement of established goals." The primary factor in the development of a sound organization is an acute awareness of the part that interrelationships of people play in the accomplishment of tasks. The coordination of each person's effort is obtained only through the web of relationships created by the interdependence of all members of the organization. The author states that, "The web of relationship is actually a communications network and is possessed of an unusual characteristic: as persons are added to the structure beyond the original two in number, the relationship grows not arithmetically but in exponential proportion to the number added." The author gives some examples of this phenomenon and details the principles which should govern the organization of a hospital so that it may effectively serve its purpose in the community.

Hospital Informal Organization. In discussing the informal organization, the author defines what sociologists and social psychologists frequently mean by the term and delineates some major situations which give rise to informal organization, particularly as these occur in large institutions. He outlines some functional and dysfunctional aspects of informal organization, including their significance for the larger structure which they affect. Some ways of utilizing informal organization on the practical administrative level are suggested.

HOSPITAL TOPICS

Vol. 37, June, 1959

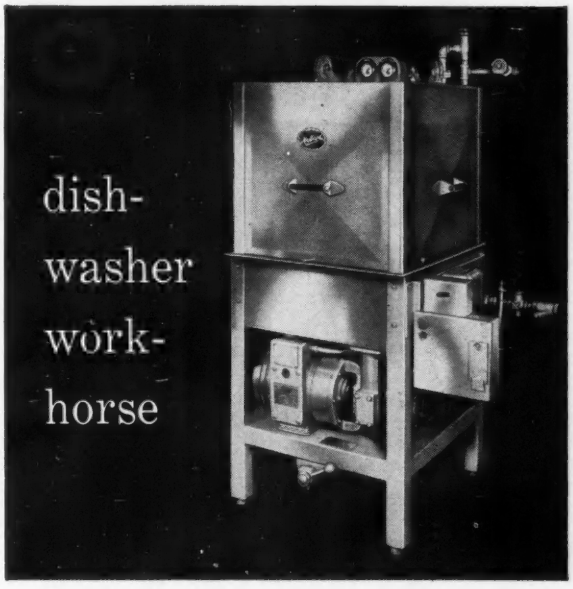
*Personnel supervision and training in a dietary unit. H. S. Levie.—p. 29.

Supervision and Training of Personnel. "Equipment and facilities are only as good as the use to which employees put them; standardized work procedures are only as efficient as the people who carry them out." Several aspects of the training program and organization of the Jewish Hospital and Medical Center, Cincinnati, are: (a) selection of personnel, (b) on-the-job training, (c) continuing training, and (d) recognition. An example of the evaluation report, a chart on the organization of the department, an employee's self-rating form, and the dietitian's rating form are reproduced.

HOSPITALS

Vol. 33, June 1, 1959

Check sheet helps hospitals to evaluate dietary



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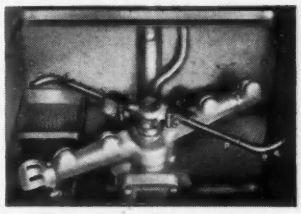

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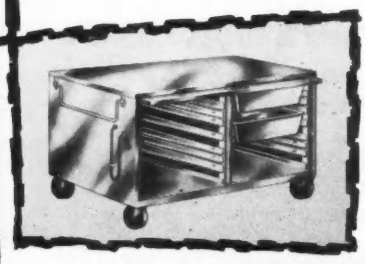

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operations. J. T. Foster and J. Hartman. —p. 71.

Vol. 33, June 16, 1959

*How Michigan hospital saved $73,000 in labor costs. G. M. Parker.—p. 75.

Labor Cost Savings. A $73,000 saving in the dietary department's labor cost in a Michigan hospital was achieved by a change of principle in staffing the department. The principle of "man-hours" needed to do a job was applied instead of "number of employees." The author explains some of the steps taken to reduce time-consuming procedures and to effect over-all economizing measures. Comparison tables on hours of labor with relation to patient census are presented.

THE HOTEL MONTHLY

Vol. 67, June, 1959

*What's ahead for hotels in food technology. W. B. Esselen.—p. 44.

Food Technology Outlook. The author defines food technology and explains what a knowledge of and training in food technology enables one to do. Food technology is divided into three parts and the author elaborates on each: (a) food technology today, (b) food technology tomorrow, and (c) what the food technologist can offer the food service industry. The author tells of many new developments and products in the field and also gives a brief rundown of what is to be expected in the future.

INPLANT FOOD MANAGEMENT

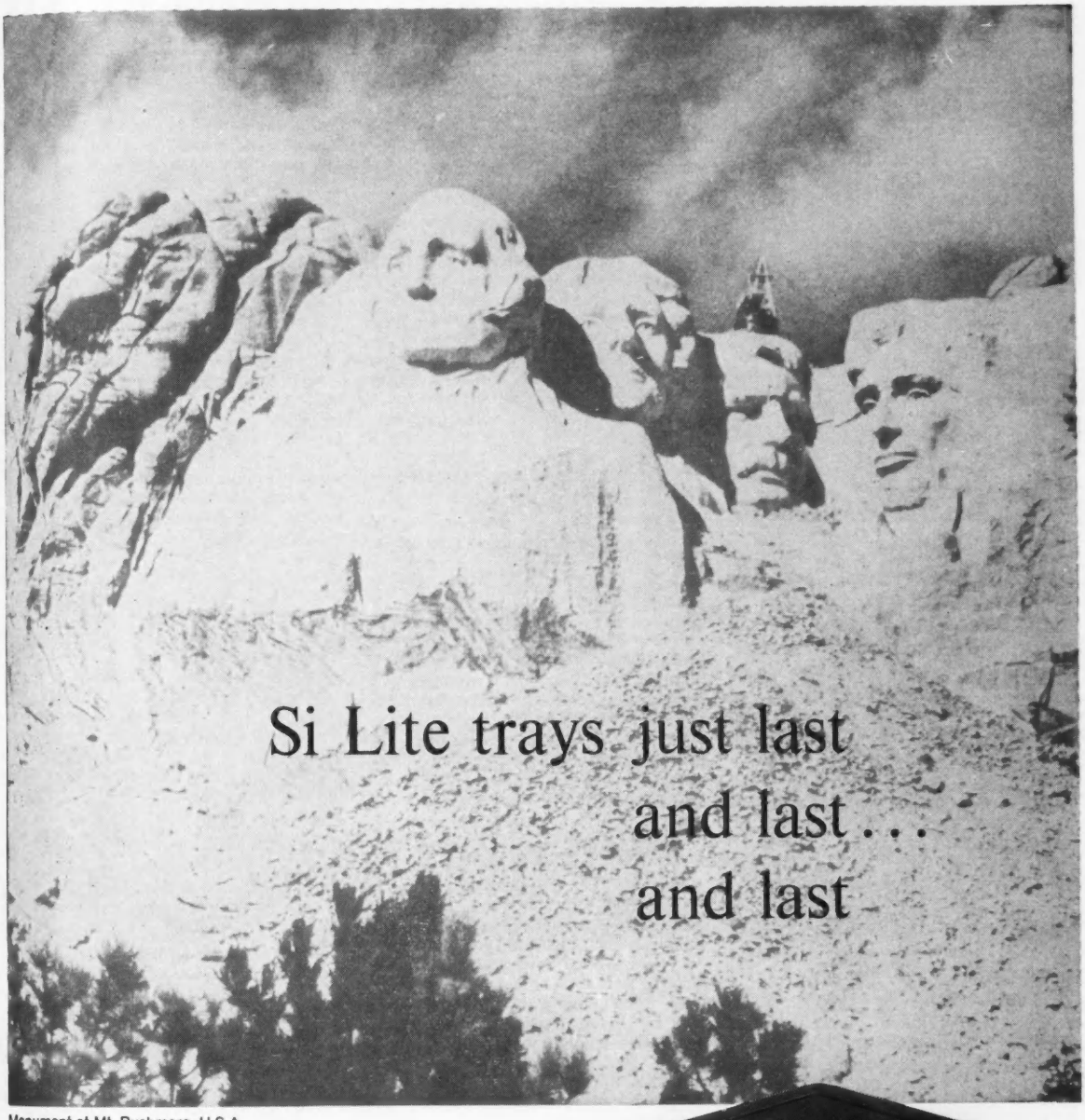
Vol. 6, June, 1959

*Uncle Sam takes a look at you. R. C. Lifquist. —p. 29.

*How automatic fat filtration provides better fried foods at less cost. A. Weck.—p. 41.

Uncle Sam Looks at Industrial Feeding. The author reviews the full report of the U.S. Department of Agriculture's study of the industrial feeding field. The report reveals buying practices and composition of manufacturing plant operations. Collection of data, characteristics of the plants and their food services, purchasing practices, expenditures for food, and the various categories of food are discussed. Eleven percentage tables relating to these topics are included.

Fat Filtration. The latest step in modernizing the cafeteria operation of a pharmaceutical company was the replacement of an antiquated method of straining used frying fats with efficient automatic filtering. This new equipment has cut fat consumption in half, even though the number and amount of fried foods prepared has substantially increased. Comments from the customers also add a note of approval from the standpoint of the improved palatability of the fried foods. The author found that, "Automatic filtering allows us to use fat for over two months, more than twice as long as formerly." A filtering unit is not only less hazardous and dirty, but also takes only 30 min. instead of an entire afternoon.



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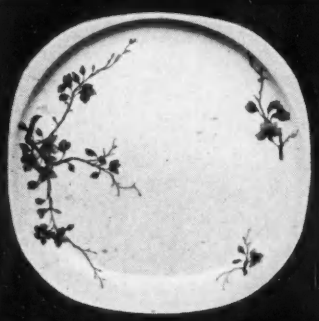

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INSTITUTIONS

Vol. 26, July, 1959

*Basic course in food preparation. Fifth training cycle.—p. 12.

*Quick service counter cookery. A. Macfarlane. —p. 116.

*Meat preparation machinery.—p. 124.

*A short course in kitchen design. J. Laschober.—p. 132.

Food Preparation Course. The fifth training cycle of the basic course in food preparation developed at Florida State University is outlined. Subjects discussed are fish cookery, the leafy vegetable, simple desserts, pies and pie crusts, cocoa making, custards, and sauces. The service section deals with the preventive aspects of food service safety, and the sanitation section covers detergents and other cleaning agents, hand dishwashing, and floor maintenance. General rules for table service are contained in the section on food distribution. Several techniques and methods are illustrated by photographs.

Counter Cookery. Until recently, counter cookery equipment was available for custom fabrication only. A wide selection of equipment is now on the market which enables today's operator to accomplish two patron-pleasing purposes—speedy service and showmanship. Small steam-jacketed trunnion kettles and compartment steam cookers are available for quick service operations. The specifications and merits of several models of steam equipment are discussed, as well as other types of quick counter equipment, including egg boilers, infra-red food warmers, infra-red barbecues or rotisseries, frankfurter grills, microwave ovens, and accessories.

How to Select Meat Equipment. This article continues the section on meat slicers which was begun in an earlier issue. Also presented are data on tenderizers, patty-molding machines, and attachments. This practical purchasing guide tells what to look for in meat-preparation machinery. Equipment features, such as safety design, easy and thorough cleaning, portion control, economy of operation, power source, and so on, are discussed.

Kitchen Design. The author continues in Part VII of a series of articles on basic kitchen design principles, his discussion of the store room area. Data on walk-in refrigerator storage are given. Economies of quantity buying enjoyed in the purchase of foods for dry storage can be extended to fresh foods through the use of refrigerated store rooms. "The advantages of a walk-in refrigerator should be considered in the design of even the smallest food service operation." The author gives information to assist the operator in estimating space needs, planning construction, and specifying equipment.

THE MODERN HOSPITAL

Vol. 92, May, 1959

*They make their own visual training aids. G. E. Jorgenson.—p. 103.

Vol. 92, June, 1959

*Reward of good training is good workers. P. S. Stanfield.—p. 138.

Home-Made Visual Aids. This hospital found that there were few films or illustrative materials available which are geared to the hospital problem of good employee orientation and training. The staff of the dietary department took it upon themselves to develop lantern slides which provide step-by-step instruction in tray assembly. Several of the slides are reproduced. The training program discussed is easily adaptable to any hospital.

Training Rewards. A Texas university hospital which developed its own training program and manual demonstrates by major dollar savings that well trained employees who know what they are doing, and why, are happier, stay longer, and are more productive. The training program falls into two main categories: the training of employees who will teach others and the actual training of the new employee. The author states that, "Emphasis in all manuals of training should be on the proper attitude toward patients, good hospital conduct, and ethics, and these ideas should be instilled in each new employee before he begins to train for his own particular job. When he realizes the importance of his job to others, and his own importance in the scheme of things, then his first positive step has been taken toward becoming a good employee." A general outline of the training program and manual is presented.

NRA NEWS

Vol. 2, June, 1959

*Ruffley speaking on food and equipment . . . advance model of new oven shown. J. J. Ruffley.—p. 20.

New Oven. As an illustration of the author's discussion of the value of a trade association, a new type oven for restaurant operators is introduced. This advance model of the oven was developed as a result of inter-industry cooperation. Several associations pooled ideas and thinking and, as a result, spelled out the restaurant industry requirements. A well known food equipment manufacturer and inventor then designed and built the prototype oven. A diagrammatic illustration of the oven is given together with some preliminary results with conventional foods.

RESTAURANT MANAGEMENT

Vol. 84, June, 1959

*Broilers are versatile!—p. 76.

*A leaflet of tips.—p. 80.

Versatile Broiler-Fryers. Many suggestions for the preparation of this favorite low-cost menu item are given, such as: how to bake, broil, oven-broil, fry, oven-fry, and braise. The article also includes a recipe for basic baked chicken and for a dependable tomato barbecue sauce.

Leaflet of Chicken Tips. Eleven hints on labor-savers for every kitchen

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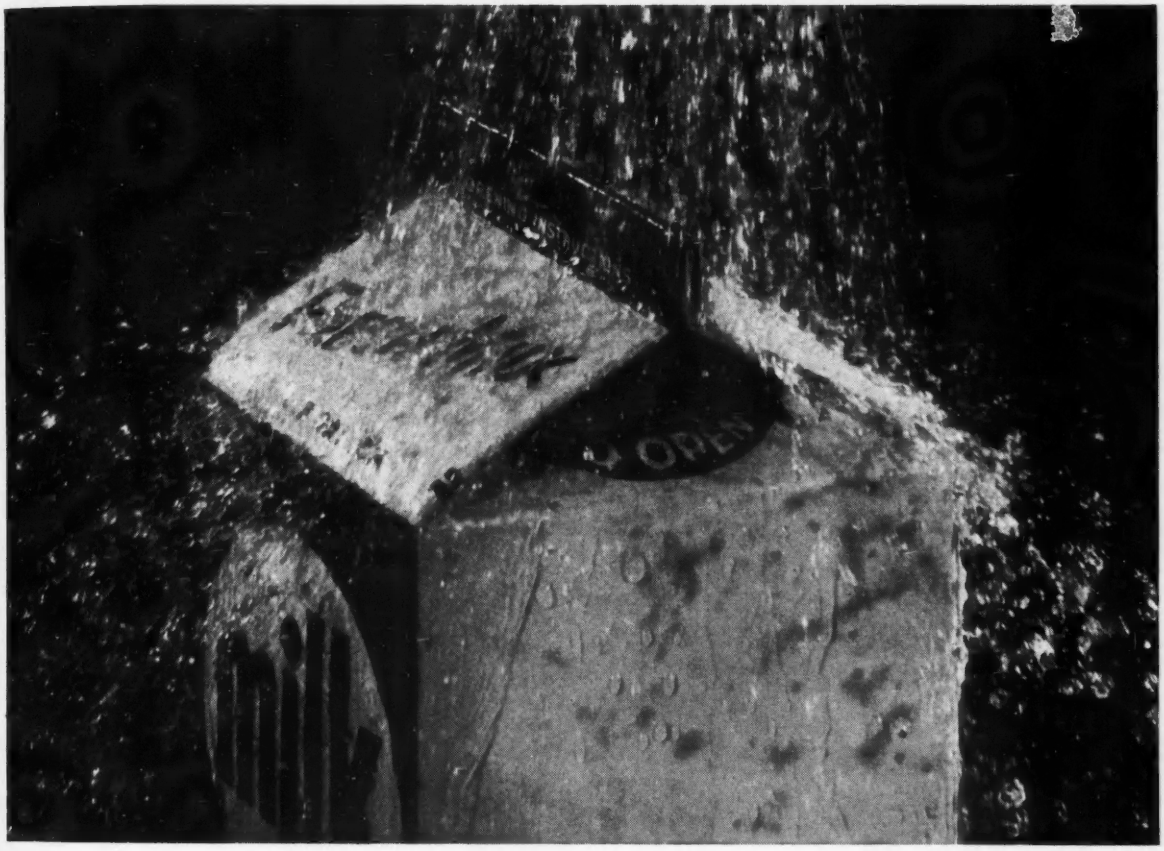

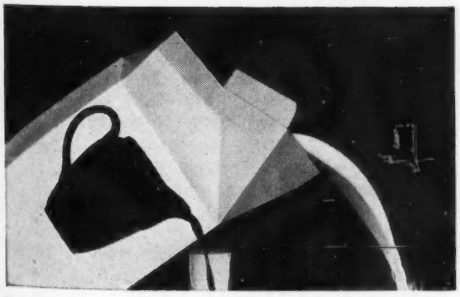

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when preparing chicken are listed. A glossary of chicken terms, suggestions for adding flavor to chicken, and five pointers on how to test the doneness of chicken are presented.

SCHOOL LUNCH JOURNAL

Vol. 13, June, 1959

*Here's how to plan your serving areas. E. Deleon.—p. 32.

Counters with a Plan. A good measure of realistic forethought tailored to local conditions is a "must" when planning serving counters for a school lunch department. The advantages and disadvantages of several types of equipment and possible layouts are discussed. A sketch of one layout is included, with a suggested breakdown of the space required for serving area, such as trays, silver, napkins, and straws; hot items; cold items; milk; and the cashier.

VOLUME FEEDING MANAGEMENT

Vol. 12, June, 1959

*Two-in-one dessert specialties.—p. 12.

*Cottage cheese . . . how to buy it and use it to perk-up your menu. E. Blair.—p. 18.

*How to get employees to cooperate.—p. 32.

*How to buy fresh snap beans. R. A. Seelig. —p. 44.

*Product evaluation report: air conditioners.—p. 72.

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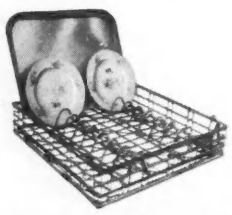

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Gelatin-and-Ice-Cream Desserts. A hitherto unthought of combination of fruit flavored gelatin and ice cream can provide an interesting and flavorful dessert and offers many possibilities for variety by using different combinations. Several such ideas are presented, such as fruit sauces made with fruit flavored gelatin; parfait pie; riced gelatin, topped by a scoop of ice cream, and a spoonful of sauce; and so on.

Cottage Cheese with a Flair. Cottage cheese is beginning to join the ranks of the glamorous in food service circles. The public appetite for it is becoming increasingly large, it seems. "The amount of cottage cheese eaten, per person, has actually doubled in the last ten years." Not the least of its new-found charms is a conspicuous economy coupled with amazing versatility. The author credits the added attention that cottage cheese has gained in current dietary trends as one of the reasons for the increasing consumption. "Food operators alert to the tenor of things will feature this popular, all-around food and profit by its many advantages." Examples of some widely varying uses for cottage cheese and ten recipes are given.

Employee Cooperation. A three-part sanitation program in a downtown cafeteria has been successful in keeping standards high and costs low. The program is based on an every-employee-cooperates scheme which has three parts: (a) telling employees what sanitation is expected; (b) offering incentives for cooperation, and (c) following up to insure continued interest and effort. Employees' sanitation duties and responsibilities are defined.

Buying Snap Beans. Fresh snap beans are available in all seasons, the volume being greatest from June through October. The author describes the many varieties of green snap beans and the characteristics by which to judge quality. Government grades for snap beans are: U.S. Fancy, U.S. No. 1, U.S. Combination, and U.S. No. 2. Information on marketing and storage of beans is given. In reach-in refrigerators, 40° to 50°F. is optimum, with 85 to 90 per cent humidity.

Air Conditioners. "An air conditioning unit is a mechanical device to treat the air in the space to be conditioned." New developments have made this definition literally true and have even supplied additional features. Air conditioning equipment should be able to compensate for peak heat output from people and service tables, remove high kitchen or sun heat, control humidity, remedy poor air circulation, and introduce sufficient air to dilute food odors and tobacco smoke. Pointers on the factors to be considered when purchasing an air conditioner, how to determine the cost, and worthwhile accessories are given. The article tells of some definite trends in future air conditioning developments.

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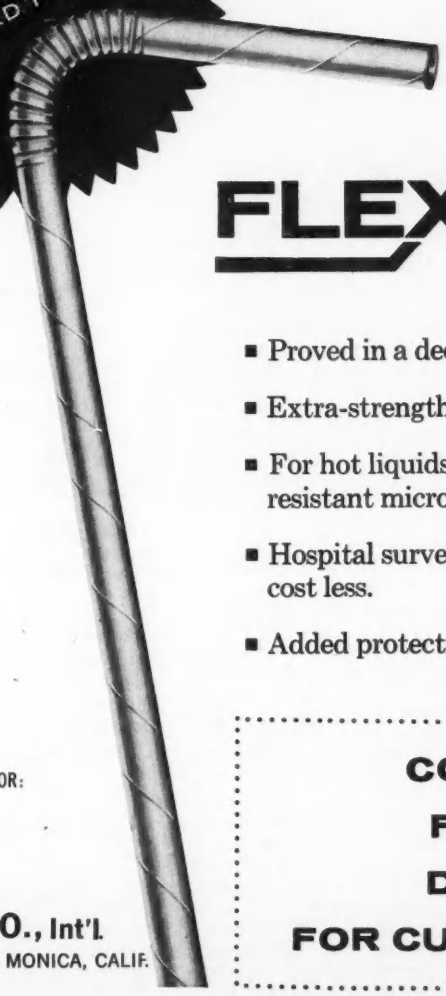

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Nutritionists in the News. The United States Committee for UNICEF has announced the election of *Dr. Charles Glen King*, Executive Director, The Nutrition Foundation, Inc., to its Board of Directors, to serve a period of six years.

Dr. Carl V. Moore, Busch Professor of Medicine, Washington University, St. Louis, is the 1959 recipient of the Goldberger Award in Clinical Medicine. The Award, which consists of an engraved gold medal and an honorarium of $1000, was presented to Dr. Moore at the annual meeting of the American Medical Association in June in Atlantic City.

Dietetics Institute. An Institute on Dietary Administration will be held under the sponsorship of the American Hospital Association at the Multnoma Hotel, Portland, Oregon, November 30 to December 5.

Mid-Year Dietetic Internship for Army. The Army Medical Specialist Corps is pleased to announce the opening of a mid-year dietetic internship program. The first class will enter Brooke Army Medical Center in February 1960. Applications may be submitted prior to November 1959, and selections will be announced on November 15 in accordance with the policy of The American Dietetic Association. Interested students are invited to contact the AMSC Counselor in their area or write to The Surgeon General, Department of the Army, Washington 25, D. C.

Applications for the Graduate Dietitian Student Program and the Student Dietitian Program may be submitted any time during the year. These opportunities provide excellent financial assistance for qualified students for graduate or undergraduate work.

Frozen Foods to Use in September. The National Association of Frozen Food Packers suggests the following frozen foods as being generally available, economical, and excellent for September meals:

Frozen Fruits and Juices

CONCENTRATE FOR LEMONADE, LIMEADE, AND PUNCHES. Summer-time interest in cold fruit beverages continues through early fall, and these concentrates offer variety in the beverage menu, especially in hospitals.

CONCENTRATE FOR ORANGE JUICE. Reconstituted, this product offers a fast way to provide ever-popular breakfast orange juice, rich in ascorbic acid.

BOYSENBERRIES. Baked in cobblers and pies, these berries make a most desirable autumn dessert.

STRAWBERRIES. Through frozen strawberries, shortcake can become a year-round menu offering. Use whole, halves, or sliced strawberries.

Vegetables

BEANS—GREEN AND WAX. Vary with bacon, ham, mushrooms, celery, cream sauce, or mushroom soup, when serving this favorite vegetable, which is attractive and colorful on the plate.

BROCCOLI. This bright green stalk and florette vegetable adds much to the appearance of a plate and requires no trimming when purchased in the frozen state.

PEAS, AND PEAS AND CARROTS. Vegetables to add color and appeal to a plate.

POTATO PRODUCTS. Offer great labor savings, since only heating—by any method preferred—must be done. The diversity of frozen potato products is greater than generally realized.

Report on Radioactive Fallout on Foods. During the atomic testing in Nevada from May to October 1957, known as "Operation Plumbbob," fallout tests were made on processed foods, containers, packaging materials, and raw agricultural products. Two reports on these tests have now been issued jointly by the Food and Drug Administration and the Federal Civil Defense Administration.

In the first booklet, WT-1496, on processed foods, containers, and packaging, the effect of a comparatively low level of fallout on the protective qualities of eighteen materials is reported. The plastics and paper tested were adequate for preventing contamination of foods packaged therein, but burlap and cloth offered poor protection. Oily or dusty surfaces were more retentive of fallout than clean ones. Of the cleaning measures tried, wet or dry cloth-wiping seemed the most effective, with detergent washing and brushing next in order. Many retail packages, particularly those with a wax-paper overwrap, retained considerable amounts of fallout. There were, however, only two cases in which contamination of the contents of retail packages could be demonstrated.

The effect on raw agricultural products is reported in the second booklet, WT-1497. Wheat, dried fruits, snapped corn (unhusked), soybeans, cotton seed, and potatoes were exposed to moderate contamination resulting from fallout under actual field conditions. Water washing of dried fruits, soybeans, and cotton seed was relatively ineffective in removing fallout contamination, but scrubbing potatoes, followed by removal of the skins was effective. The protecting layers of husk around ears of corn prevented the contamination of the grain inside. A complete milling operation on fallout-exposed wheat showed that much of the contamination could be removed by cleaning operations, as well as by separation of the bran. The resulting flour had relatively low residual radioactivity. Because of the low degree of contamination of the wheat, however, caution should be used in extrapolating these results to more severe conditions.

Copies of these reports may be ordered at 75 cents each from the Office of Technical Services, Department of Commerce, Washington 25, D. C.

To Help Prepare People for Retirement. From the *National Association for Mental Health* (1790 Broadway, New York 19) comes a series of six four-page folders titled simply "Notes for After Fifty." These folders were designed to stimulate people now fifty to sixty years old to examine realistically the changes that will occur with retirement and aging while there is still adequate time to plan, prepare, and adjust to the future. The folders can be used by counsellors or by individuals themselves. The titles of these folders are: "Planning for Your Later Years"; "Improving and Keeping Your Health"; "Slowing Down and Enjoying Life"; "Making the Most of Your Abilities"; "Preparing to Live on Less"; and "You, Your Home, Your Family and Friends." In Note 2 on health, several sections are devoted to diet, food fads, weight, exercise, and rest. Sample sets may be ordered at $1 each, and quantity discounts are available.

From the *Metropolitan Life Insurance Company* (One Madison Avenue, New York 10) comes a new publication, "When Our Parents Get Old," which can be read with profit both by the families of the elderly and the oldsters themselves. In it are discussed many aspects of this delicate and often difficult problem, although the booklet is primarily concerned with a three-generation household. Reasonable supplies may be requested for use with study groups and in program planning.

Symposium Reported. Papers presented at Symposium IV of the Council on Foods and Nutrition, American Medical Association on October 11, 1957, at Columbia, Missouri, have now been reprinted in booklet form from the *Journal of the American Medical Association*. Titled "Nutrition in Pregnancy," five papers are included:

"Nutritional State of the Mother Prior to Conception"—Genevieve Stearns, State University of Iowa, Iowa City

"Maternal Nutrition and the Fetus"—Ray Hepner, University of Missouri Medical Center, Columbia

"Production of Congenital Malformations by Dietary Measures—Experiments in Mammals"—Josef Warkany, University of Cincinnati College of Medicine

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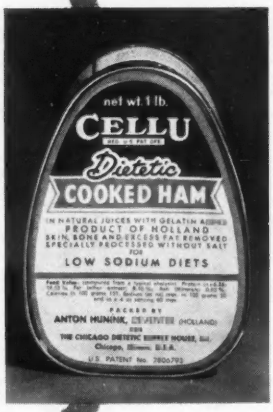
Ham, one of the most flavorful of all meats, is now available in natural juices especially processed without salt for low sodium diets. Skin, bone and excess fat have been removed in this imported 1 pound ham. Sodium value (as na) mgs. in 100 grams 50; 4 oz. serving 60 mgs. Recipes and suggestions for serving are on the tin.

SEND FOR YOUR COPY OF CELLU'S COMPLETE CATALOG OF LOW SODIUM ITEMS.

CELLU DIETETIC FOODS ARE THE FINEST OF THEIR KIND. OVER 300 ITEMS AVAILABLE.



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Manager of private institution, Kentucky: "A truly fine quality product. We've used it for years in baking and cooking as well as drinks."

CRAMORES CRYSTALS
LEMON - ORANGE - LIME
- Ideal for institutional use
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CRAMORES "DRI-SYRUP"
- Instantly soluble in cold water
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Now Available! Cramores Instant Hot Chocolate Powder
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EATING IS FUN—
for
Older People, Too

Designed to Aid Proprietors of Small Nursing Homes and Residences. Also Adaptable to Home Kitchens

This attractive booklet is a guide to better food and food service in the small institution. Based on normal nutritional requirements for adults, the menu patterns, sample suppers, and pointers on meal planning have their place in any household. Practical ideas for making the work of the manager easier and pleasanter include a weekly marketing guide, hints for economy in buying and storage, and suggestions for serving.

This is a project of the Diet Therapy Section of The American Dietetic Association.

Single copy 50¢

Five copies $2.00
Ten copies 3.75

Order from:

THE AMERICAN DIETETIC ASSOCIATION
620 North Michigan Avenue
Chicago 11, Illinois

Maternal and Infant Nutrition. XII. Effect of Reproductive Cycle on Nutritional Status and Requirements" — William J. McGanity, Edwin Bridgforth, and William J. Darby, Vanderbilt University School of Medicine, Nashville

"Metabolic and Biochemical Changes in Normal Pregnancy"—Icie G. Macy, Merrill-Palmer School, Detroit

Single copies will be sent on request to: Council on Foods and Nutrition, American Medical Association, 535 North Dearborn Street, Chicago 10.

Booklet on Combatting Food Fads. A new publication from The Nutrition Foundation, Inc., is titled "The Role of Nutrition Education in Combatting Food Fads." In it are published four papers which comprised the major portion of a symposium on nutrition research and education held January 15, 1959, in Berkeley, California, under the joint sponsorship of the Nutrition Foundation and the Northern California Section of the Institute of Food Technologists. The titles of the chapters are self-explanatory:

"The Food Industry's Role in Combatting Food Fads and Quackery" —Roy. G. Lucks, President, California Packing Corporation

"Food Fads vs. Professional and Public Education" — Martha F. Trulson, Mary B. McCann, and Fredrick J. Stare, Harvard School of Public Health, Boston

"The Food and Drug Administration's Attitude on Food Fads and Nutritional Quackery"—Kenneth L. Milstead, Food and Drug Administration

"Federal Trade Commission Activities in the Correction of False, Misleading and Deceptive Representations Employed in the Sale of Food and Related Products"—Charles A. Sweeny, Federal Trade Commission

Single copies of this booklet are being distributed at no charge by The Nutrition Foundation, Inc., 99 Park Avenue, New York 16.

New FAO Report. The Food and Agriculture Organization of the United Nations has issued a *Report of the FAO/UNICEF Regional School Feeding Seminar for Asia and the Far East — Tokyo, Japan, 10-19 November 1958.* Aspects of the problems which were discussed at the meeting include: general food and nutrition problems in the region with special reference to children; purpose and scope of school feeding programs; administrative and financial aspects; physical arrangements; education and training in nutrition; assessment of results; and future development of school feeding programs. There are, in addition, several appendices, one of which gives data on some nutrition food products developed in the Orient. Single copies of this publication may be ordered from: International Docu-

Your Standard Brandsman turns tea taster . . .

You should, too! For tea is often the last gracious, relaxing touch to the meals you serve. The right brand can bring you profitable repeat business.

The *right* brand is Tender Leaf. The Standard Brandsman can show you why in as little time as it takes to dip a Tender Leaf Tea Ball into a cup of boiling water. Compare the rich, clear, attractive color of Tender Leaf with the look of other brands. Proof that Tender Leaf chooses only the zesty *top* leaves!

The Standard Brandsman points to another "plus": the Tender Leaf tag tells customers that you are as discerning about quality as they.

For ideas on how to improve your beverage service, write the Standard Brandsman, P. O. Box 2555, New York 17, New York.

Tender Leaf

TEA BALLS

ments Service, Columbia University Press, 2960 Broadway, New York 27, at a cost of 50 cents each.

Course in Food Preparation. At the Restaurant Research and Development Foundation of Florida State University, Tallahassee, John M. Welch has worked on teaching aids in an effort to upgrade the training in the restaurant industry.

Now available is a student's text or handbook, *A Basic Course in Quality Food Preparation*, designed to give the student a basic understanding of food production. In about 80 hr. of class work, the student actually is able to prepare some of every kind of food served in this country. The course moves from the simple to the more complex dishes as follows: sandwich making, breakfast cookery, vegetable preparation and cooking, salad dressings and salad making, fresh fruit preparation, poultry, stews and meat loaf, gelatins, hot sauces, fish cookery, meat substitutes, desserts, and stocks and soups. Instruction is also given in food sanitation, safety, and food service. This material was prepared for the Foundation with the cooperation of the Florida Light and Power Company. Copies may be ordered for $1.50 from the Foundation. An *Instructor's Guide* is also available at $2.

Manual of Nutrition from Britain. A new edition (the fifth) of the *Manual of Nutrition* of the British Ministry of Agriculture, Fisheries, and Food has recently been released. It differs considerably from the previous edition.

Part I, which covers carbohydrates, fats, proteins, and food consumption and physical work, has been amended to take into account new opinion on the fundamental aspects of nutrition. Part II, which is concerned with digestion and absorption, the recommended nutritional allowances, and food composition, has been rearranged to more easily explain the subject, while Part IV has been expanded to include the effect of cooking on foods and nutrients.

Copies should be ordered from H. M. Stationery Office, London. The price is 3 shillings per copy.

International Congress of Gastroenterology. April 20 to 24, 1960, have been set as the dates for the International Congresss of Gastroenterology to be held in Leyden, the Netherlands' oldest university town. The Congress program will include five working sessions of a half-day each, with a sixth devoted to questions concerning X-ray technique. The main themes of the Congress will be: pathology of the small intestine; and hepatitis, cirrhosis hepatitis, and their possible connection. There will be panel discussions, lectures, and film shows, as well as scientific and technical-commercial exhibits. Original reports on these subjects or any other gastroenterologic subject, either clinical or in the field of the basic sciences, are invited. Applications for inclusion on the program should be sent to: Secretariat, International Congress of Gastroenterology, 16 Lange Voorhout, The Hague, the Netherlands. The finished lectures should reach the secretariat by October 1, 1959.

Interns Graduate. Graduation exercises for the fourteen members of the twenty-ninth class to complete the dietetic internship at *St. Marys Hospital*, Rochester, Minnesota, were held on July 9. Dr. John Lundy of Mayo Clinic, as guest speaker, developed the topic, "Training for the Profession of Dietetics." The St. Marys Award, given to the intern who has shown qualities of leadership, professional aptitude, and marked growth during the year and who also shows promise of future growth, went to Bernadette Novack of Minneapolis. Suzanne Simard, St. Martine, Quebec, Canada, received honorable mention. The Mary Agnes Foley prize for demonstrating outstanding skill in teaching diabetic patients was presented to Miss Simard by Dr. Russell M. Wilder, Emeritus member of the Mayo Clinic staff. Shirley Boyle, Darlington, Wisconsin, received honorable mention. Other graduates of the class were:

Carol Dohr, Mount Mary College, Milwaukee

★

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food service might cost you much less

• The present equipment for the preparation and serving of food in your establishment may be in perfect condition. But, are you certain that it is as efficient as it might be if it were partially replaced and properly rearranged?

• The investment for such changes might be saved in one year and become profits thereafter. In one recent case, new Van equipment and rearrangement *cut dishwashing personnel from 19 to 12 and will eventually reduce it to nine!*

• Use *Van's century of experience* to cut your costs now.

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Branches in Principal Cities

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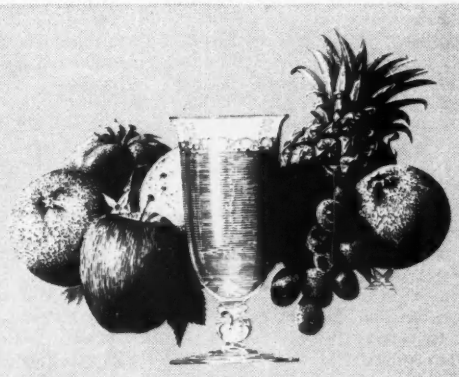
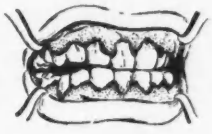
WHY SHOULD THE VITAMIN C CONTENT OF FRUIT AND VEGETABLE JUICES BE STANDARDIZED?



Because nutrition reports disclose that—

- **Vitamin C deficiencies exist throughout the country***
- **Scurvy has not disappeared from the United States***

Proof of deficiencies among adults and children. You should know these facts!* Diet surveys from Maine and Vermont, New York, Illinois, New Mexico, Oregon, West Virginia, and Texas show a definite pattern of inadequate vitamin C intake. These studies covered grade school and high school children, college men and women.



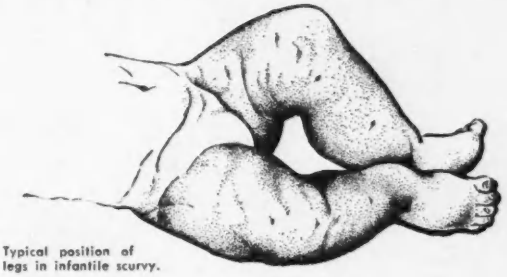
Spongy, swollen gums symptomatic of scurvy.

From these studies* of dietary habits and physical conditions there is considerable proof that many of the children and adults covered by survey have actual, physical symptoms of vitamin C deficiency.

Infantile scurvy. Scurvy* occurs, even today, among infants who are artificially fed. Fortunately the disease may be cured by the administration of vitamin C. How much more sensible it is to prevent it by supplying these bottle-fed infants with the daily allowance of 30 milligrams of vitamin C as recommended by the Food and Nutrition Board of the National Research Council for children under one year of age.

Symptoms of infantile scurvy are fretfulness and fear of being touched.

These bottle-fed infants, unless receiving a pediatric prescription containing vitamin C, are largely dependent on supplemental ascorbic acid which they receive from fruit or vegetable juices. Unless fortified with vitamin C many of the processed juices may not supply these babies with adequate quantities of this essential element.



Typical position of legs in infantile scurvy.

What can be done? Because of the increasing evidence that American diets are deficient in vitamin C, leading nutrition experts believe that processed fruit and vegetable juices, on which the public is so reliant for its supply of this necessary vitamin, should contain the "Vital Ingredient."

The Vital Ingredient of any processed fruit or vegetable juice is a *dependable* and *adequate* supply of vitamin C. You can give your juice this ingredient by *standardizing its vitamin C content*. The processing is simple and the new low cost of ascorbic acid makes juice standardization more attractive than ever.

With ascorbic acid available *by the tons* at extremely modest cost fruit and vegetable juices can have a standardized vitamin C content for the better protection of the nation's health and well-being.

*Statements are based on documented reports. References on request.

Illustrations after photographs in The Vitamins in Medicine by Bicknell and Prescott, Third Edition, published by Grune & Stratton, Inc., New York.

ROCHE Pure, crystalline VITAMIN C
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Sister Stephanie, College of St. Benedict, St. Joseph, Minnesota
Marion Steenblik, University of Utah, Salt Lake City
Nelda Willet, Northwestern State College, Natchitoches, Louisiana

On July 9, seven dietitians were graduated from the administrative internship of *Eastman Kodak Company*, Rochester, New York. William S. Vaughn, Vice-President and General Manager of Eastman Kodak, addressed the graduates and presented certificates to:

Eleanor E. Daly, Regis College, Weston, Massachusetts
Carole S. Frazier, Michigan State University, East Lansing
Nancy M. Lambert, Pennsylvania State University, University Park
Anna-Marie Lamoreux, Regis College, Weston, Massachusetts
Sally Johnson Moye, Iowa State College, Ames
Nancy L. Richards, Oregon State College, Corvallis
Charlene M. Schaadt, Michigan State University, East Lansing

From *Ancker Hospital*, St. Paul, comes an announcement of the recent graduation of six dietetic interns, who received diplomas and pins. They are:

Mollie Frey, College of St. Teresa, Winona, Minnesota
Vel Rae Neeb, North Dakota State College, Fargo
Carol Louise Smith, University of Massachusetts, Amherst
Nancy Edith Stall, Illinois Institute of Technology, Chicago
Mary M. Stapenhorst, Briar Cliff College, Sioux City, Iowa
Mary Anne Stone, University of Minnesota, Minneapolis

Another recent graduation was that of interns at *Vanderbilt University*, Nashville. The class was addressed by Dr. John W. Patterson, Director of Medical Affairs and Dean, Vanderbilt School of Medicine. The following graduates received certificates from Dr. William J. Darby, Director, Division of Nutrition:

Katherine Bean, University of Tennessee, Knoxville
Mary Ann Cutler, Mississippi State College for Women, Columbus
Beulah Dillow, Madison College, Harrisonburg, West Virginia
Sarah Hannah, University of Alabama, Tuscaloosa
Nancy Crane Johnson, University of New Hampshire, Durham
Cristel Burns Miller, Meredith College, Raleigh, North Carolina
Gleedell Jolley Moody, University of Tennessee, Knoxville
Carolyn Riever, University of Texas, Austin
Lanell Wiggins Saeger, Texas Women's University, Denton
Emily Stanley, Winthrop College, Rock Hill, South Carolina
Frances Whitley, Louisiana State University, Baton Rouge
Marjorie Windsor, New York State Teachers College, Buffalo

Fat Content and Pork Quality. Marbling results in cooked pork loin and rib roasts which are tender and juicy, but does not necessarily help fresh ham, according to studies by the USDA's Institute of Home Economics. On the other hand, marbling of the loin offers a better guide to ham tenderness than the amount of backfat on the animal. Although the tests made along this line provide important information, knowledge of the effect of fat on the tenderness of pork is still limited and more research is needed to determine the amount and distribution of fat in raw pork which will give best quality in cooked meat.

Frozen Blueberries. At the Washington State Agriculture Experiment Station, blueberries grown in the Pacific Northwest were tested for freezing. For dessert use, berries frozen in sirup had a finer flavor and

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THE FINEST!
CLOVERTON
on the
REVERE SHAPE
SPACE SAVER
You'll be amazed how compactly the Revere Shape fits on tray or table. In fact, no shape takes less tray space. And this lovely Cloverton pattern will delight you. Your choice of several two-color combinations.
Remember, nothing holds heat or cold... cleans so easily... is so durable and resistant to wear as VITRIFIED CHINA! Ask your Walker Dealer or send for his name and address.
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THE
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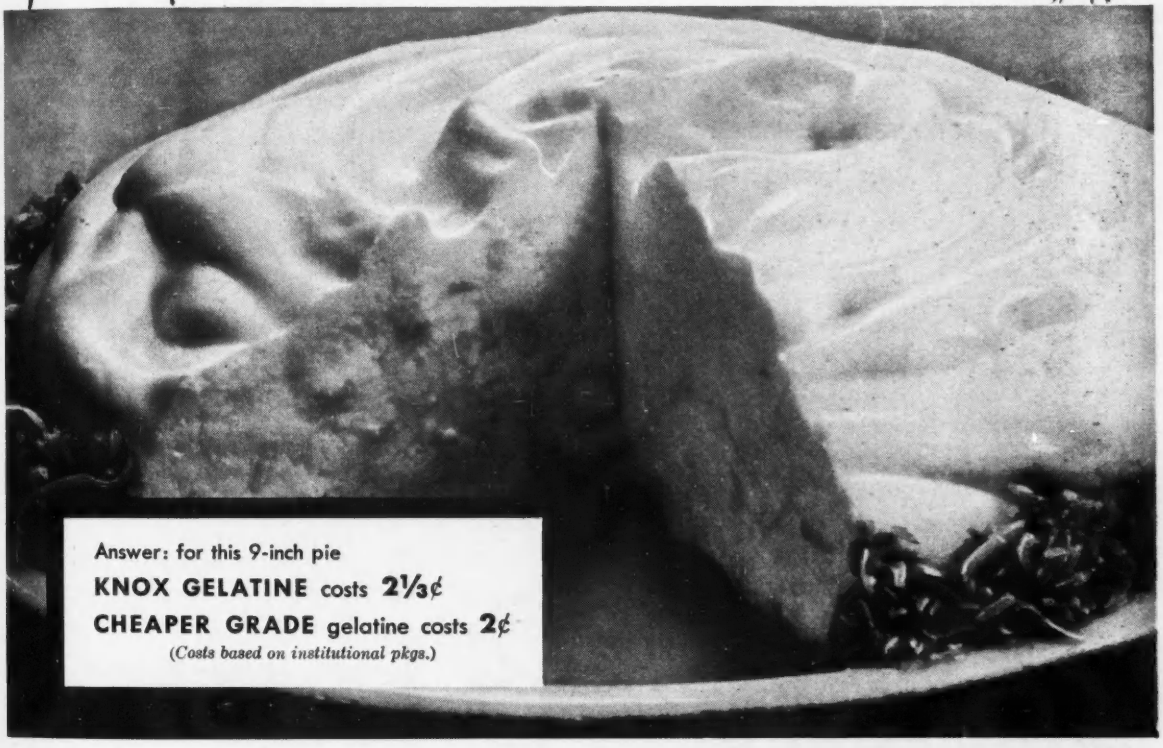
GUESS

what the unflavored gelatine costs for this Lemon Chiffon Pie...

(answer below)



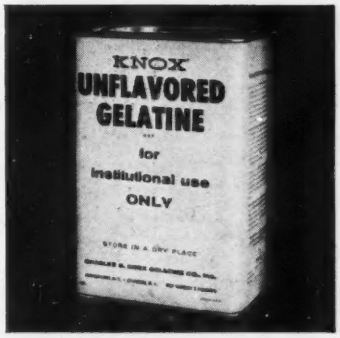
Answer: for this 9-inch pie
KNOX GELATINE costs **2⅓¢**
CHEAPER GRADE gelatine costs **2¢**
(Costs based on institutional pkgs.)

It pays to use the top quality... KNOX UNFLAVORED GELATINE

Whether a jellied dish is the chef's most gorgeous creation or the dietitian's simple Spanish Cream, the cost of the gelatine is only a tiny proportion of the total cost.

So why settle for anything but the best? Knox Unflavored Gelatine is always uniform in gel strength for sure results. Sets faster, frees refrigerator space for other foods. Made under rigid laboratory control to U.S.P. standards, Knox Gelatine is odorless and tasteless, plays up the full natural flavors of the fine, fresh ingredients you use.

Specify KNOX GELATINE in the new economical 3-pound package. You get more servings per pound with KNOX.



KNOX GELATINE, INC.
Johnstown, N. Y.

more tender texture than those frozen with dry sugar or without sweetening. The unsweetened pack was inferior to the other two both as to appearance and texture.

Storing Frozen Peas. Storage of frozen peas packaged in clear plastic at temperatures of 0°F. or lower maintains the color and flavor well. In tests conducted at the USDA's Western Utilization Research and Development Division, Albany, California, plastic bags of frozen peas were exposed to display-case illumination, much as they might be in a retail market. Those stored at 0°F. kept good color for three weeks and developed no off flavors. However, after four days under the lights, frozen peas stored at 20°F. developed a mottled appearance and, at the end of a week, had developed off flavors.

Milk Preferences Studied. Milk beverages with varying percentages of cream and nonfat solids are being taste-tested by: thousands of Arizona shoppers at retail food markets, school children, and people at various public gatherings. Each taster drinks two samples of milk, reporting his preference. Six pairs of samples are being offered currently, through the efforts of the Arizona Agricultural Experiment Station in cooperation with the dairy industry. More than 5,000 people have already taken part in this study, and as many as 15,000 are expected to serve as tasters ultimately.

Thus far, the study indicates that people like milk which has nonfat solids added. In all except one of the six pairs of samples tested, consumers preferred the milk with the higher nonfat solids content. However, when the choice was between skim milk containing 10 per cent nonfat solids and a milk having a small quantity of cream (1.5 per cent fat) and only 8.5 per cent nonfat solids, the latter won, indicating probably that cream, even in small quantities, adds to the appetizing qualities of milk for drinking.

Before the research is completed, tests will be conducted to learn how the various milk beverages actually sell.

"He's cross as a bear until he gets Continental Coffee!"

Write for free trial package

Continental Coffee

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News of State Associations

District of Columbia Dietetic Association. The Diet Therapy Section of the D. C. Association last year prepared a booklet offering seventy-five recipes for use on a liberal-ulcer type regimen. This booklet has been reviewed and mentioned by *Good Housekeeping*, with the result that more than eighty requests for it have been received from some twenty-two states, Canada, and the Canal Zone. It has now been reprinted and may be ordered at a cost of 25 cents each to cover the cost of printing and mailing.

Officers for 1959-60 for the D. C. Association will be: President, Helen R. Cahill, Central Office, Veterans Administration, Washington; President-Elect, Maureen Doherty, Clinical Center, National Institutes of Health, Bethesda, Maryland; Treasurer, Lt. Col. Helen M. Davis, AMSC, Office of the Surgeon General, Washington; and Secretary, Janet Clark, VA Hospital, Mt. Alto.

Florida Dietetic Association. The *Miami Dietetic Association* in April enjoyed an exceptionally interesting program on "Hypnosis in Dietetics." Dr. Benjamin E. Schwarez, Chief of Urology, VA Hospital, Miami, pointed out that medical hypnosis has found a place in ethical, scientific medicine. Many kinds of eating problems could be solved with this powerful psychologic tool if physicians would take the time to learn the technique. He demonstrated various hypnotic phenomena on a patient he had treated for obesity. He also described the Shorr regimen, a method used to prevent the recurrence of kidney calculi.

The annual convention of the Florida Dietetic Association will be held in Palm Beach, October 7 to 9, with a theme of "Recent Developments." The program will include: a panel discussion on nutrition in infancy, adolescence, pregnancy, and adulthood; a

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stainless steel heavy-duty dish and tray truck by LAKESIDE

Nothing has been spared to make this the finest, most efficient and rugged dish and tray truck on the market. It's a proud addition to our Imperial line.

707 glides easily, silently . . . even over the roughest floors. Heavy-duty, ball bearing, 8-in. swivel casters assure finger-tip handling.

707 is perfectly balanced, easy to manage even when carrying full load of 500 pounds.

707 is rugged — double durable. Eighteen-gauge stainless steel construction, reinforced with 1 x 1 x ⅛-in. stainless steel angle frame. All electronically welded.

707 is convenient, easy to work with. No unnecessary moving or bending . . . this truck unloads from one side. Low over-all height — rolls under average 34-in. counter.

IMPERIAL 707 VITAL STATISTICS

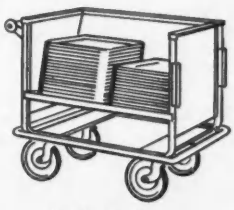
Dimensions — Width, 22½" — Length, 34¾"
Height, 32⅛" — Height to shelf, 18⅛"
Casters (STD) — 8" swivel

Bumper Equipment (STD) — handle and corners
Carrying Capacity — 500 lbs.
Shipping Weight — 94 lbs.
Price (truck only) — $176.00.
Accessories (extra cost)
Stainless steel hinged front and top cover — $59.00.
Channel bumper guard — $32.00.

Prices f.o.b. Milwaukee. Slightly higher in the West and Canada.

Compare this convenient carrying capacity no dividers, one-side loading

15 dozen 9-in. plates plus 6 dozen 5-in. or 7-in. plates



10 dozen trays

Accessories — Stainless steel hinged front removes for easy cleaning. Used with stainless steel hinged top cover, it provides enclosed sanitary protection.

Stainless steel hinged top cover

Exclusive, removable stainless steel hinged front cover

Channel bumper guard

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MANUFACTURING INCORPORATED
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AMERICA'S CART HEADQUARTERS

session on the "pros" and "cons" and the "hows" and "whys" of fat metabolism, as well as speeches on recent research and economics in convenience foods and recent developments in administration and equipment.

Illinois Dietetic Association. The Food Administration Section of the Illinois Dietetic Association has gained the sponsorship of the Chicago Board of Education for a course for food service supervisors. The first class will be restricted to twenty students, who must be high school graduates. The program will be for one year and will combine classroom work with work experience, and students will earn six college credits. Bonnie B. Miller will be the instructor.

Maryland Dietetic Association. The Maryland Dietetic Association's Scholarship for 1959 has been awarded to Edith A. Howard, a graduate of Hood College, Frederick, who is serving her internship at Massachusetts General Hospital, Boston.

The DuBois Scholarship of the Maryland Association this year went to Constance Hazzard, a graduate of Morgan State College, Baltimore, who is now an intern at Freedman's Hospital, Washington, D. C.

New York State Dietetic Association. The following will be the officers for 1959-60 for the New York State Dietetic Association: President, Margaret Grainey, Chief Dietitian, Genesee Hospital, Rochester; President-Elect, Sister Anne dePaul D'Arcy, Our Lady of Victory Hospital and D'Youville College School of Nursing, Lackawanna; Treasurer, Aimee N. Moore, Cornell University, Ithaca; and Secretary, Marian C. Jones, New York State Department of Mental Hygiene, Albany.

The growth of the New York State Dietetic Association has necessitated a redistribution of local associations, and in order to include all areas within their local range, the Buffalo Association has been renamed the "Western New York Dietetic Association," while the Rochester Association is now called the "Genesee Dietetic Association."

South Carolina Dietetic Association. Officers for 1959-60 for the South Carolina Dietetic Association will be: President, Kathrine Vaughan, Columbia; President-Elect, Adelaide Faris Dorsey, Columbia; and Treasurer, Mary French Crooks, Charleston.

Virginia Dietetic Association. Margaret Fitzhugh is serving as the representative of the Virginia Dietetic Association on the newly formed Health Careers Recruitment Committee of the Virginia Council on Health and Medical Care. Ten other medical and para-medical groups are represented on the committee which has launched a state-wide program to help in meeting the shortage of health personnel. Its purpose is to supplement the recruiting programs of the various professions represented and make available to young people information which will aid them in making a career choice. An exhibit is available for showing on career days in schools, and a kit of recruiting material has been placed in high school libraries. A poster will be used in libraries, physicians' offices, hospitals, and schools. In addition, a health career booklet and brochure will soon be released. The recruiting program is financed by a grant from the Old Dominion Foundation and by matching money from the Virginia Council on Health and Medical Care.

South Dakota Dietetic Association. For the second year, the South Dakota Dietetic Association and the Division of Home Economics of South Dakota State College have sponsored a "short course for hospital cooks." Seventy-nine cooks from thirty-four hospitals and nursing homes, as well as ten members of the dietetic association, attended the meeting on July 25 in Brookings. The program included presentations on menu planning, sanitation, diet therapy, and interdepartmental relations and communications. A certificate of attendance was presented at the close of the meeting to each cook who participated.

Let CREAM OF RICE help solve your modified diet problems

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EXTRA NOURISHMENT

Cream of Rice is rich in Iron, plus Vitamin B_1, Riboflavin and Niacin.

New Medical Study proves that Cream of Rice is *easier to digest than any other kind of cereal.* Gives quick food energy, too—within a few minutes after eating. Many pediatricians recommend it for growing children—and as one of baby's first solid foods.

And many doctors recommend Cream of Rice in modified diets for food allergies, ulcers, high blood pressure, hypertension, intestinal distress and digestive troubles.

2

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Cream of Rice, a delicious, nourishing, easy-to-digest cereal, cooks in just ½ minute! New, easy-pouring spout!

3

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What's more, Cream of Rice is as delicious as it is nutritious. That's why it's so good as a breakfast cereal, too! Adults and children alike will enjoy its creamy deliciousness.

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COMMENDED BY PARENTS' MAGAZINE

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Professional Sample

Send your name and address to:
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Dept. C9J,
West Chester, Pa.

ONE CONVEYOR...MANY TOP ARRANGEMENTS

All-purpose food conveyor provides interchangeable insets for various menus

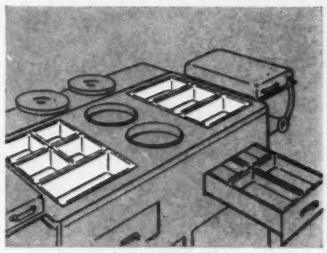
• You are ready for every food service requirement with Blickman-Built all-purpose food conveyors. Simply arrange the different sizes of square and rectangular insets in the top deck to suit the menu. For general service, you store the relatively limited variety of foods in larger insets. To handle the more diversified foods in selective menus and special diets, you replace the larger insets with a greater number of smaller ones. Round wells are also provided for soup, broth and potatoes.

• Seamless top and crevice-free body is standard construction in all Blickman-Built stainless steel food conveyers. These features offer notable benefits in sanitation and durability.

• The new Hi-Flo heating system cuts preheating time in half, assures piping hot foods for your patients.

A full complement of square and rectangular insets provides food storage for a wide variety of menus.

Rectangular wells accommodate a variety of inset combinations.



Another possible arrangement for top deck. Heated drawer holds special diet insets. Round insets are for soup, broth or potatoes.

Another variation showing use of one full-size pan at left and four insets in right-hand well.

All-Purpose Model ALS-4922
Long shelf and two rectangular pan covers provide work surface for loading trays.

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Blickman-Built all-purpose food conveyors are fully described in our new Catalog T-5. Also shown are a wide selection of bulk food and tray conveyors designed for various types of decentralized and centralized services. Write for your copy today.

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Association Activities

Senate Subcommittee. Senator Patrick McNamara, Chairman, Subcommittee on Problems of the Aged and Aging, has invited the Association to participate in hearings being held "on the problems facing a nation of fifteen and a half million over the age of sixty-five, and more than five million over seventy-five." Many national organizations have been invited to describe their activities in the field of aging and present their views and recommendations on needed action.

Nelda Ross Larsson, New York, New York, will represent our Association at the hearings. She is also the A.D.A. representative on the liaison group working with the 1960 National Health Forum Committee of the National Health Council in planning the Meeting on "Health of Older People."

Joint Committee on Standards for Maternity Patients. Mary Reeves, Children's Bureau, Chicago, participated in the joint committee meeting of the American Association for Maternal and Infant Health which was concerned with the development of a "Guide for Standards for Maternity Patients in Hospitals." The meeting was held in Chicago on July 25. The Committee reviewed the standards as submitted which pertain to pre- and post-natal and hospital nutrition services to maternity patients.

Civil Defense and Emergency Mass Feeding. Elsie Wells Russell, a member of the A.D.A. Disaster Feeding and Civil Defense Planning Committee, represented the Association at the 3rd Annual Regional Conference of Region 7-8, Women's Civil Defense Council, in Santa Rosa, California, April 23 to 24. The conference was attended by some seventy-five women representing almost as many national women's agencies and organizations. The reports from these organizations showed that civil defense activities are, primarily, integrated into the government of the various cities.

Looking at this conference from the viewpoint of food and nutrition, it appears this group is an extensive potential resource which could be "tapped" in time of emergency to assist in mass feeding. It is suggested that all state dietetic associations send a representative to their regional civil defense conferences and that they be prepared to participate in one of the panels by giving a short 3-min. outline of suggestions for emergency mass feeding programs for schools, small institutions, and convalescent homes, both in case of evacuation for themselves and for receiving evacuees.

Obituaries

Lucina Ball Bailly. The A.D.A. office has been notified of the death of Lucina Ball Bailly on May 8, in San Diego. She had been a member of the Association since 1956, and had been on the staff at Baptist Memorial Hospital, San Antonio.

Dorothy T. Bonenberger. Word has been received of the sudden death on July 21 in the Bahamas of Dorothy T. Bonenberger, Chief Dietitian, VA Hospital, Bay Pines, Florida. She had been a member of the Association since 1930. Prior to her association with the VA Hospital in Bay Pines, she had been on the staff at Whipple Barracks, Arizona. She was a graduate of Florida State College for Women.

Mabel O'Donnell Creighton. The A.D.A. office has been notified of the death of Mabel O'Donnell Creighton on July 17. Mrs. Creighton was admitted to membership in A.D.A. in 1935 and had been a life member since 1946. She had served on the staffs of the VA Hospitals in Dayton and Chillicothe, Ohio, and at the time of her death was Chief Dietitian of the VA Hospital, Sunmount, New York.

Mildred Callison Shulls. The A.D.A. office has received notice of the death of Mildred Callison Shulls of Boulder, Colorado, on May 26. Mrs. Shulls joined the Association in 1941 and became a life member since 1949. She

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had been on the staffs at Lutheran Deaconess Hospital, Chicago, and St. Mary's and Grace Hospitals, Detroit, before moving to Boulder. In her honor, her husband, Wells A. Shulls, Ph.D., Associate Professor of Microbiology and Public Health, University of Colorado, has established a Mildred Lucille Shulls Memorial Loan Fund for food majors in the Home Economics Department of the University. Additional contributions from friends will be welcomed and should be sent to the School of Pharmacy, University of Colorado, Boulder.

News of Products and Services

The Institutional Products Division of *General Foods* in July launched a special "Food Service Sweepstakes" which is tied in with the Post Cereal's "Little Bit Better Breakfast Sweepstakes" for consumers. Both contests are designed to support September, the Better Breakfast Month. Entry requirements for the Food Service Sweepstakes call only for the name and address on an official entry blank of anyone in the food service industry mailed to Sweepstakes headquarters. All entries must be postmarked not later than November 30, 1959. Drawings will be held on January 6, 1960. First prize will be an all-expense paid trip for two to the 1960 National Restaurant Association convention in Chicago or $1000 in cash. Forty-one other prizes will also be given.

Syracuse China has two new patterns for institutional china. The "Millbrook" pattern, which was displayed at the company's booth at A.D.A.'s Annual Meeting in Los Angeles in August, features white blossoms backed by green leaves and a shaded green border accent. The second new pattern, "Delmar," is part of the company's Hospitality group. It is a square shape, so that the same number of pieces of china will fit on a 10½ by 15 in. tray, as compared with a 16 by 22 in. tray required for conventional shaped china. The design is a corner decal of turquoise and tan heart-shaped leaves, accented by pale red berries. The steel-hard glaze is guaranteed.

A new offering from *Gerber* is a combination of Strained Orange and Apple Juice. Prepared especially for babies, it provides generous amounts of ascorbic acid.

Another new combination from *Gerber* is Junior Cereal, Egg Yolks, and Bacon which provides variety in a high-quality-protein and pleasant-textured food.

A new portable dish cart for storing dishes is available from *Lincoln Manufacturing Co., Inc.* Made of stainless steel, fully insulated and fitted with adjustable dish-nesting compartments, the unit dispenses up to 360, 9½ in. plates or 268, 10 by 14 in. trays. It is obtainable in a range of sizes.

A gallon unit of milk in twin half-gallon cartons with a convenient carrying handle is a new type of container called Bi-Pak developed by *Pure-Pak*. Housewives feel the Bi-Pak is more easily accommodated in the refrigerator than the bottle jugs and easier to use.

Boned, rolled, and tied Oven-Ready Leg O'Veal is suggested by *Pfaelzer Brothers* as a nutritious food, low in calories, and well suited for hospitals, schools, and institutional food service. The center bone is chiseled out, sinews removed, and no fat added, yielding a 100 per cent edible product. The legs are 3½ to 4 in. in diameter and weigh 5 to 9 lb. Blast-frozen, the leg-of-veal roasts require only 20 to 25 min. per pound to roast from a slightly defrosted state.

General Mills has announced a new cereal, Caramel Puffs. Made of corn, puffed and popped, and caramel flavored, it may be used as a breakfast cereal or for between-meal snacks. It is similar to Cocoa Puffs except for the caramel flavor.

Metropolitan Wire Goods Corp. has added an improved model (S4C16) silver rack to its Sani-Stack line. The new unit has a lower and broader base with sixteen compartments and greater number of perforations for freer flow and drainage. It cannot be upset in the dishwasher. Short handles do

a margarine designed to aid in
lowering cholesterol

References: 1. Terman, L. A.: Dietary management of hypercholesterolemia, Geriatrics *14*:111 (Feb.) 1959. 2. Boyer, P. A.; Lowe, J. T.; Gardier, R. W., and Ralston, J. D.: Effect of a practical dietary regimen on serum cholesterol level, J.A.M.A. *170*:257 (May 16) 1959. 3. Vail, Gladys E.: Cooking with fats high in polyunsaturated fatty acids, J. Am. Dietet. A. *35*:119 (Feb.) 1959. Reprints available.

PITMAN-MOORE COMPANY
Division of Allied Laboratories, Inc., Indianapolis 6, Indiana

a delicious spread

not catch on the curtain of the dishwasher. The new model can be used in peg-type washing machines. Stainless steel construction prevents corrosion.

A twelve-page catalogue with detailed descriptions and illustrations of every item in the *Metropolitan Wire Goods Corp.* line is available. Ordering instructions and prices are given of each unit offered and are presented in a new, easy-to-read format.

National Better Breakfast Month in September, originated by breakfast cereal manufacturers, will be joined this year by the "Better Meals Make Better Families" national food promotion, according to an announcement from *Cereal Institute, Inc.* A market research survey reports 34 per cent of food items appear at breakfast compared with 30 per cent at the evening meal. Increased emphasis on better breakfasts to attract consumer interest will be spotlighted during "Better Breakfast Week," September 6 to 12.

An eight-page booklet, "Cereal Glossary," is now available from *Cereal Institute, Inc.* Information on the cereal grains, food value of breakfast cereals, and the nutritional contribution of cereal and milk are outlined.

A thirty-six-page reference book in color on the importance of an adequate breakfast is available from the *Cereal Institute, Inc.*, for use by teachers, lecturers, writers, and broadcasters. Research information on breakfast-eating habits and scientific breakfast studies with bibliography, basic breakfast patterns, and a moderate low-fat, cereal-and-milk breakfast are presented. School and community better breakfast programs with graded classroom activities are described.

The new line of Compact Counter Model Open Hearth Charco-Gas Broilers (Series 50), manufactured by *Bakers Pride Oven Co., Inc.*, is designed to give meats a true charcoal-broiled flavor, aroma, and appearance without the use of charcoal. A specially designed "Grease-Flo Grate" with a wavy patterned surface holds the meat on peaks, eliminating frying or grilling, while the flame sears in all juices and reduces meat shrinkage. Other features of the unt are an internal grease drain system; new type burners that work efficiently with manufactured, mixed, natural, or bottled gas; a new multi-level salamander broiling rack for toasting buns, braising, and pan broiling seafoods; and a new convenient gas-feed connection permitting flush installation. Counter and floor models are manufactured in one- to three-grate sizes and are available with stainless steel front and top, with Hammertone sides, or stainless steel all around. On two- and three-grate sizes, a griddle plate may replace or be placed over the grate for frying.

Bloomfield Industries, Inc., has announced a line of full size, half-size, quarter-size, and third-size pans made of 18-gauge stainless steel. These pans are available in 2½ to 6½ in. depths. The new heavy-duty items feature rounded corners, tapered sides for convenient nesting, ripple-free surfaces, full thickness at all corners, perfect balance and smoothly-ground edges. The new line will be supplied with each pan wrapped in a clear, sealed polyethylene bag.

A new germicidal cleaner to combat and control staphylococcus and gram-positive and gram-negative bacteria has been announced by *The DuBois Co., Inc.* It is a cleaner as well as a sanitizer and germicide. Soil and grease can quickly be rinsed away with water, due to its emulsifying action. A soapless formulation leaves no film. It is packaged in 15- and 55-gal. drums for institutional use.

A compact juice dispenser with 6-gal. capacity, which fits into little more than a square foot of counter space, is offered by *Helmco-Lacy*. An enlarged compressor capacity for quick, efficient cooling holds beverages at 38 to 40° F. The sealed refrigeration unit is fully automatic and is housed in a stainless steel cabinet. The unit is also available in 3-gal. capacity.

An improved method of tenderizing, developed after three years of research by *Continental Food Laboratories*, employs three separate types of tenderizers. One enzyme acts on the muscle, another on the fibrous tissue, and a third on the connective tissues. The action of the enzymes does not overlap, resulting in complete

Clinical trials[1-2] demonstrate that Emdee Margarine, substituted for other spreads and shortenings in the daily diet, helps supply the linoleic acid needed to reduce cholesterol levels. Eighty per cent of Emdee Margarine's fat content is pure corn oil which is not hydrogenated but specially processed* to preserve its naturally high content of linoleic acid.

Patients whose intake of saturated fats must be restricted will find Emdee Margarine a welcome addition to their diets. Moreover, the appealing flavor, color and smooth texture of Emdee Margarine will appeal to the whole family—making preparation of separate meals for one member of the household unnecessary. *Available in 1 lb. can, at pharmacies only.*

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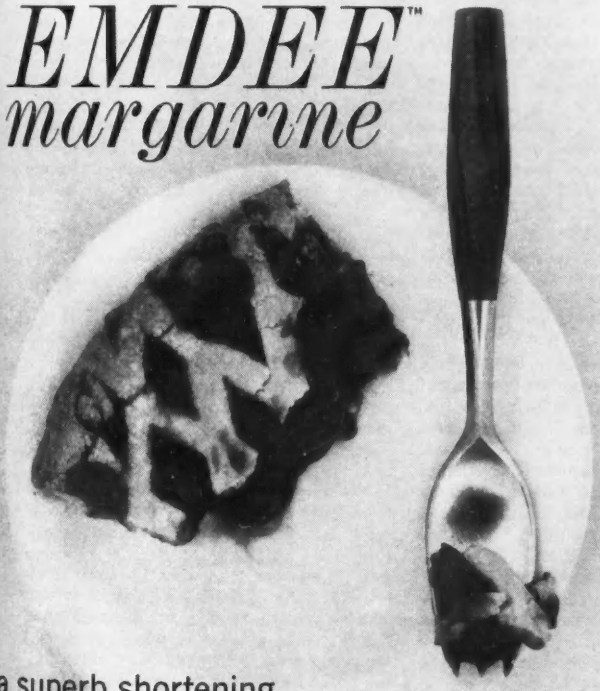

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tenderization of meat yet preserving good texture. The tenderizer is pasteurized. Packaged in a new carton, a semi-rigid, heavyweight, preformed polyethylene insert is completely enclosed in a corrugated box with the tenderizer being dispensed through a germ-free spout.

Milk, eggs, and shortening are already in *Pillsbury's* new Golden Rich Pancake Mix, developed exclusively for the institutional market. With the addition of water, the mix is ready for use. The heat in the griddle, not the water in the mix, activates the leavening, making it possible to mix a day's supply the night before. The cost of each 4-in. pancake is less than a penny. A distinctive wheaty flavor makes the mix popular.

Pillsbury is also offering a brochure of thirty-seven recipes plus twenty-one sauces and toppings for breakfast, main dish, or dessert variety.

A mobile, self-leveling cup or glass dispenser manufactured by the *Lowerator Division, American Machine & Foundry Company* features one piece, seamless, heliarc welded, Type 302 stainless steel cabinets. The dispenser has a capacity up to 12 doz. cups or 16 doz. glasses. The stainless steel self-leveling rack carrier operates with calibrated springs, sprocket, and chain mechanism.

The Frenchette Division of *Carter Products, Inc.* is offering to the restaurant and institutional markets two non-fattening dressings for salads. "Italianette" is an Italian-style dressing containing 2 calories per teaspoon. Lemon juice, garlic, spices, and seasonings give it an extra spicy flavor. Proximate values are: carbohydrates 1.06 per cent, fats 4.02 per cent, and proteins 0.02 per cent. "Frenchette" is made without oil and contains approximately 1 calorie per tablespoon, with approximate composition of: carbohydrates 0.37 per cent, fats 0.35 per cent, and proteins 0.45 per cent.

A special stainless steel liquid dispenser which enables Air Force crew members to drink even while engaged in supersonic flight is being manufactured by *Landers, Frary & Clark.* Basically the device is a 1- or 2-qt. standard Stanley vacuum bottle fitted with double valves and a silicone rubber hose with a drinking nozzle. The bottle may be mounted in a horizontal or vertical position. The drinking tube, which is fed by gravity, was designed for one-handed use by crew members while wearing oxygen masks and pressure suits. The nozzle may be slipped through a special orifice in the mask. A valve must be depressed to start the flow of liquid; when released, the flow is automatically shut off. Presently, these bottles are designated as being for drinking water, but the connecting tube and valves will be suitable for use for feeding liquid food concentrates as they are developed. The bottles may be used in nonpressurized areas up to the present operational ceilings of aircraft. Should these be extended, the bottle may be adapted for use at any altitude with only minor changes.

A Duro Meat Lug needing no maintenance and no replacement is offered by *Hollywood Plastics, Inc.* Manufactured in a tough industrial plastic, approved by USDA for direct contact with food, the unit will not absorb odors and is highly resistant to stain. Light in weight, with a nonporous surface and no sharp corners or edges, the lug will not crack, chip, or dent. It is designed to fit existing cooler racks and carts and may be cross stacked when in use. It is available in two styles: with two grooves on the bottom for secure cross stacking, or smooth bottom. Both styles nest.

A new, spill-proof baby training spoon is being manufactured by *Rhonda B. Corporation,* using a spoon section of stainless steel supplied by *Allegheny Ludlum Steel Corporation.* Swivel action makes the spoon self-leveling, no matter how the baby grips it. The weight of the food also helps to keep the spoon-bowl level. The handle of pink or blue unbreakable plastic is made to fit the baby's hand.

A small scale twin freezer and refrigerator in a near-cube shape with 5.17 cu. ft. capacity has been introduced by *Nor-Lake, Inc.,* for use under the counter or side-by-side at reach-in height. Construction features 2½ in. fiberglas insulation, sealed compressors, and white baked enamel finish, with stainless steel. The freezer (Model 5X) operates on the "cold wall" principle and has a 1/5-hp. compressor and four storage areas. The refrigerator (Model RI-5-IM) features a two-tray ice cube maker-evaporator, with ⅛-hp. compressor.

Seco Co., Inc. has designed a new unit for use in holding foods at serving temperature. Called "Tri-Veyor," this insulated, electrical unit may be preheated by plugging into standard 110 voltage outlets for 30 to 45 min. During this time, heat is stored in a built-in, heat-active storage cell. The unit is unplugged, the cover opened, and hot foods placed in the Seco-ware pans. The unit is then closed and fastened, and the hot foods will be held up to 4 hr. at approximately the same temperature as when placed in the Tri-Veyor. Because of the compact size (14 in. high, 24½ in. long, and 15½ in. wide), the Tri-Veyor unit may be conveniently used for transporting the heated food in small trucks or station wagons to locations far from the kitchen in which the food was prepared. After delivery, the unit may be placed on a special Seco serving cart and wheeled to the serving area. When normal serving time does not exceed ½ hr., the Tri-Veyor may be opened and left unplugged. If serving time will exceed 30 min., the unit may be plugged into electrical outlets on the Seco serving cart and the Tri-Veyor becomes a hot food table with a constant heat supply around each food.